



Published by
E. HARRISON CAWKER. { Vol. 13, No. 3. }

MILWAUKEE, JULY, 1882.

{Terms: \$1.00 a Year in Advance
Single Copies, 10 Cent.

THE STEVENS ROLLER MILLS

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

OVER 2000 PAIRS NOW IN USE!

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears.
We also manufacture the

Celebrated Cosgrove Concentrated Mill

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

MESSRS. JOHN T. NOYE & SONS, Buffalo, New York—

Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ⅓ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

BROOKLYN, NEW YORK, February 20, 1882.

Yours truly,

F. E. SMITH & CO.

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs,
Pollock & Co., Vincennes, Ind., 12 pairs,
James Norris, St. Catharines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co., Oswego, N. Y., 2 Cosgroves,
McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

E. T. Archibald & Co., Dundas, Minn., 12 pairs,
Crocker, Fisk & Co., Minneapolis, Minn., 54 pairs.

Jno. T. Noye Manufacturing Company, Buffalo, N. Y.

[Please mention the United States Miller when you write to us.]

E. W. PRIDE, Agent, Neenah, Wis.

ODELL'S ROLLER MILL.

An Established Success.

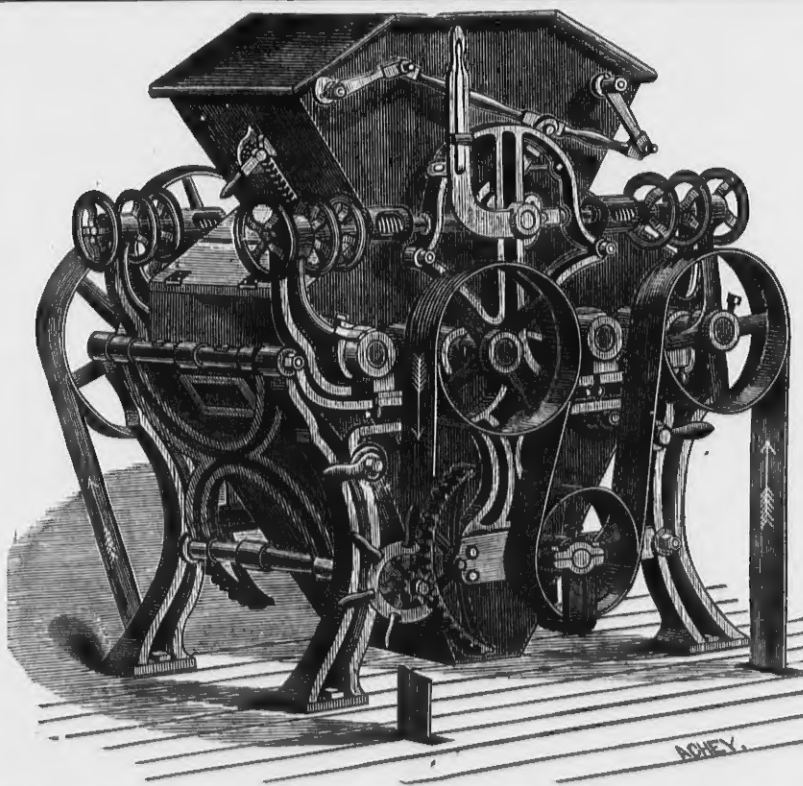
We invite particular attention to the following

POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.

2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.

4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.

5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

Ansonia Rolls!

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines.

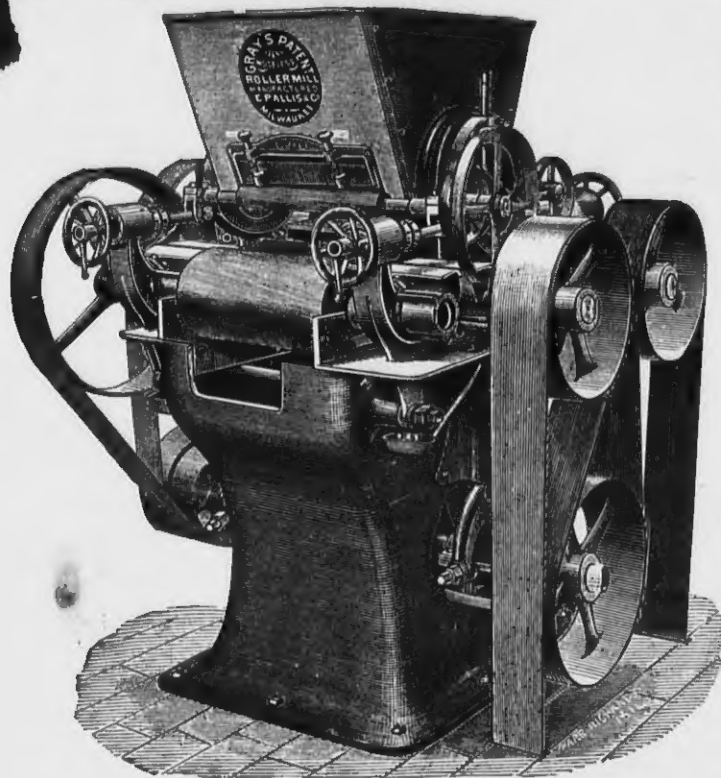
Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO.,

DAYTON, OHIO, U. S. A.

[Mention this Paper when you write to us.]

GRAY'S PATENT NOISELESS ROLLER MILLS

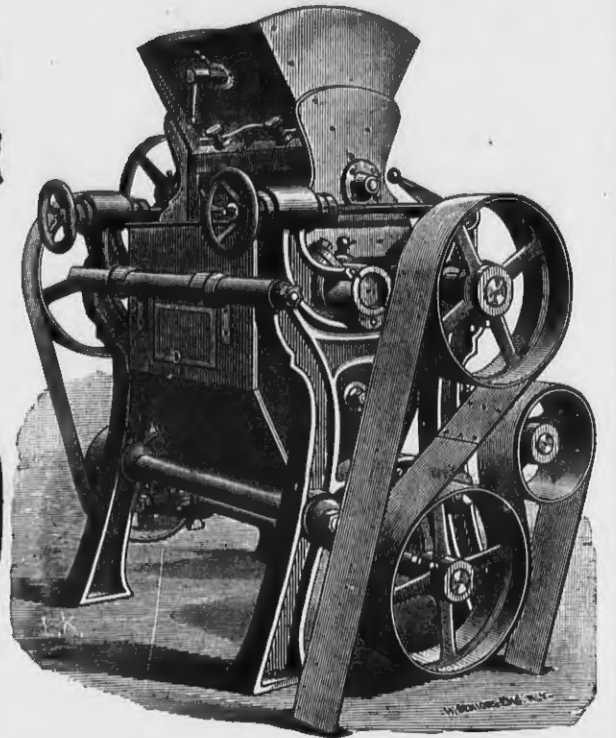


MILLS

WITH

CORRUGATED

OR



SMOOTH CHILLED IRON ROLLS

And WEGMANN'S PATENT PORCELAIN ROLLS,

MANUFACTURED EXCLUSIVELY BY

EDW. P. ALLIS & CO.

MILWAUKEE, WIS.

TO MILLERS USING NOISELESS ROLLS WITH POSITIVE BELT DRIVE.

We have at great expense obtained valuable Letters Patent known as the Gray Patents, being Nos. 222,895, 228,525, 235,761, 238,677, 251,217, of dates Dec. 23, '79, June 8, '80, Dec. 21, '80, March 8, '81, Dec. 20, '81, and which fully cover and protect our noiseless Belt Drive Roller Mill. We have with no little patience been aware that certain manufacturers have been infringing one or all of these patents, and inducing the Millers to purchase Rollers from them.

Now we are determined to bring suits against all users of such Rollers unless they will acknowledge the validity of our patents and pay us a royalty for using them.

While we may seriously regret to take such a course, yet all can easily understand that in order to protect our rights we must declare and enforce them.

We have instructed our attorney to institute suits against infringers, and before another month we expect that suits will be begun. If any Miller desires to settle before suit we will be liberal with him.

Our desire is to furnish the best Noiseless Roller Mill made, and we claim that we do.

Our patents are the foundation patents. A hint to the wise is sufficient.

EDW. P. ALLIS & CO.

[Mention this paper when you write to us.]

The United States MILLER

Published by E. HARRISON CRAWFORD. { Vol. 13, No. 3. }

MILWAUKEE, JULY, 1882.

{Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.}

Automatic Cut-Off Engine.

BUILT BY WOODBURY, BOOTH & PRYOR, ROCHESTER, N. Y.

Our engraving is a side view of an automatic cut-off engine, one of a series of sizes built by the above firm. In its construction the new ideas of engineering have been adopted, making it light, compact, strong where strength is needed, doing away with the old ideas and superfluous metal, and adopting the new ideas and practice in which is embodied that of high speed. The engine is now being used largely for electric lighting, to which it is especially adapted, as well as for any other purpose requiring the highest degree of economy and uniformity of speed, by its construction, adjustments and the finish. It is built upon what is usually known as the truss or girder frame, which has been so modified as to bring the bases and holding down bolts in a direct line, enabling the engine to be set upon a straight foundation, and also to catch the drips, as oil and water, collecting them suitably for ready removal. The cylinder ports are dropped sufficiently to drain from the bottom of the cylinder, carrying off the water of condensation and obviating the necessity of using condense cocks in the cylinder. The main valve is driven by an eccentric on the main shaft through the intervention of a rocker-arm, and the cut-off valve by an independent eccentric. The cut-off eccentric rod connects with the slide working in the bracket by means of a ball and socket joint, which allows the valve to rotate in its seat more or less according to the requirements of the load and the pressure of the steam. The rotation, which never exceeds one-quarter of a revolution of the valve, is accomplished by a segment on the cut-off valve slide working into a rack attached to the governor spindle, which places the cut-off at all times under complete control of the governor. The construction of the main and cut-off valves is shown in Figs. 2 and 3.

Fig. 2 shows a horizontal section through the center of the main valve. It will be seen that the distribution of the steam (admission and exhaust) is accomplished by an ordinary double "D" slide valve, and is no more liable to leakage or derangement than that on the common slide valve engine, and if the cut-off valve was left open and detached from the parts which actuate it, the whole would work the same as an ordinary slide valve.

Fig. 3 exhibits a vertical section through the cut-off valve. This valve works in a small cylinder attached to the main valve, and cast in the same piece with it. The valve is a cylindrical one, having ports directly opposite, and thereby perfectly balanced. This valve has diagonal admission edges with ports to correspond, so that by turning or rolling it slightly in its seat, it is made to cut off longer or shorter, as the case requires, the range being from zero (or nothing) to three-quarters stroke.

This rolling movement is under control of the governor, and, combined as it is with the sliding of the valve in its seat, it offers but very slight resistance, being even less than that of an ordinary throttling governor valve. Particular attention is called to the fact that there are but two valves, each consisting of one single piece of casting, and that these, with the fastening of the rods, constitute all

the parts of the valve works inside of the steam chest. All the other parts connected with the valves and valve gearing are outside where they can be seen at all times. The arms of the governor extend across the centre, and have their point of suspension on the opposite side from the ball. This makes a very sensitive governor, having a large range of movement within a small variation in speed. It is provided with a dash pot.

One of the most valuable features presented in these engines is that of close govern-

It is claimed that this cut-off combines the following advantages: Simplicity of construction and non-liability to derangements of the parts. Positive and certain motion, it having no trip (or catch and let go) movement whatever. Freedom from violent shocks of any kind, enabling it to be worked at any required speed as well as an ordinary slide valve. Cutting off the steam sharply when the requisite point is reached, owing to its long and rapid travel, and lapping well beyond the edges of the ports. Constant uni-

the roots, but he could not discover the cause. On Saturday morning his search was rewarded by finding a small reddish brown worm, about half an inch long and about twice as thick as a fruit stem, which was eating the wheat plant. After coming to town he took the worm to the Le Sueur flour mill, where the miller gave him two larger and perhaps full grown of the same kind, which he said were often seen in wheat when brought to the mill, and which were also in the bran and shorts. The miller also showed

a hardened light-colored worm, much shorter and thicker than the others, which he said was the last condition of the wheat-eating worm before emerging into a full fledged fly. In confirmation of Mr. Barnes' theory, that this worm is destroying the wheat in parts of many fields, Daniel Dougal, who lives in the timber near Cleveland, says that the wheat on at least two acres of a fifteen acre field on his farm has been destroyed by the same worm, and that he has seen hundreds of them at work. On inquiry we find that the wheat in a great many fields is similarly affected, although farmers have not examined closely enough to know whether it is from the

same cause or some other. This same worm partially destroyed the wheat on some farms last year, and did much injury to Mr. Barnes' crop then. It does not cut down all the wheat where it works, nor does it work all over the same field. It is believed to work most on the soils impoverished by continuous wheat croppings, and as far as learned is not at work on land cropped with corn last year. Whether this new enemy of the wheat crop lives throughout the year in the soil, or whether it winters in wheat bins, is yet an unsolved problem.—*Le Sueur (Minn.) Sentinel.*

The Cause of Dew.

If dew fell it would fall for the same reason that rain falls; but dew does not fall. It is simply a deposit, moisture always contained in the air to a greater or less degree, and which, when there is enough of it, will always form on any cold body exposed to the moist air, in precisely the same way that a cold bottle or stone, taken from a cold cellar and suddenly exposed in the shade to the moist, warm summer air, will become wet. This is not sweating, nor does this moisture come out of the bottle or stone as many people believe, but from the air. It is for the same reason that moisture will condense against the window-panes when the air is cold outside and moist inside, the moisture slowly freezing while its deposits form crystal ice which we so often admire in winter. When the weather is cold enough the moisture will even freeze plants and grass, and then we call it hoar frost; if it does not freeze it is simply dew. The only point left to be explained is why does the ground become so cool during the night, so much cooler than the air above, as to cause the latter to deposit its moisture. This was for many years a vexed problem till Wells first suggested the radiation of obscure heat, which takes place from the surface of the earth through the clear atmosphere into the space above, and so causes the surface to become much cooler than the air itself. He demonstrated this by means of thermometers placed at different heights, and also by the fact that dew is only deposited on cloudless nights. When there are clouds they reflect the heat or prevent it from escaping. The surface of the earth thus being kept from cooling, no dew is deposited.

A Wheat-Eating Worm.

J. M. Barnes has made a discovery of another enemy of the growing wheat, on his farm near town. He had noticed for a week or more that in spots his wheat was becoming thinner, and he found on examination that something was cutting the wheat plants near

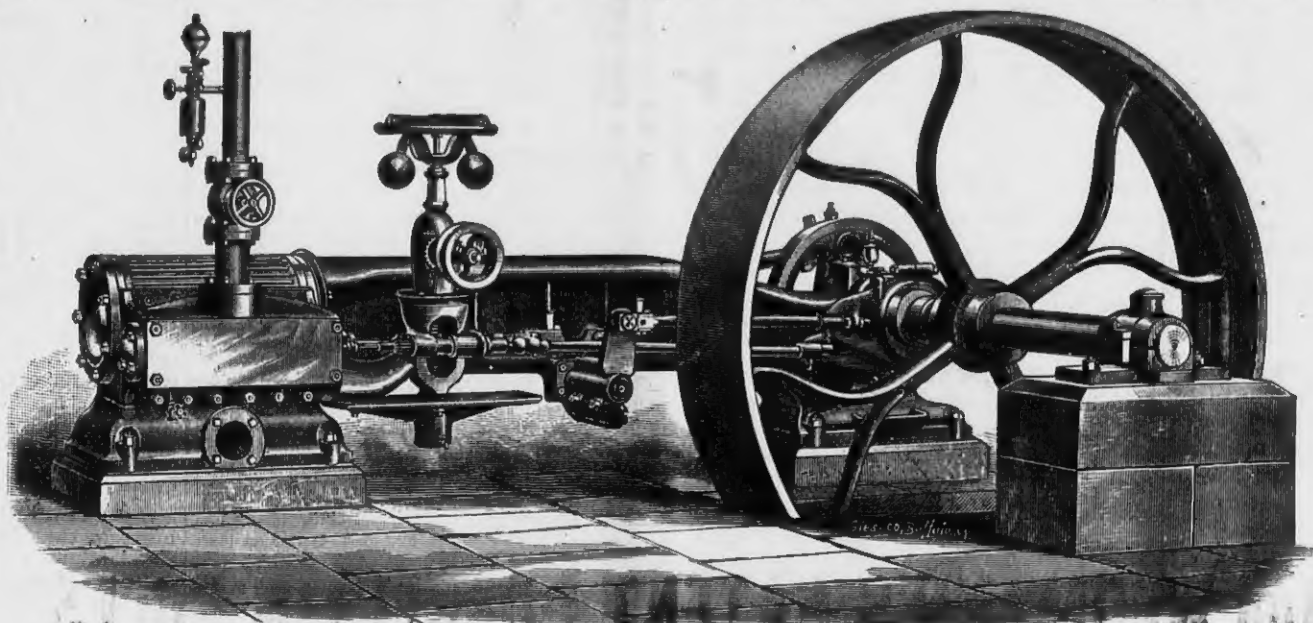


FIG. 1.—AUTOMATIC CUT-OFF STEAM ENGINE, MANUFACTURED BY WOODBURY, BOOTH & PRYOR, ROCHESTER, N. Y.

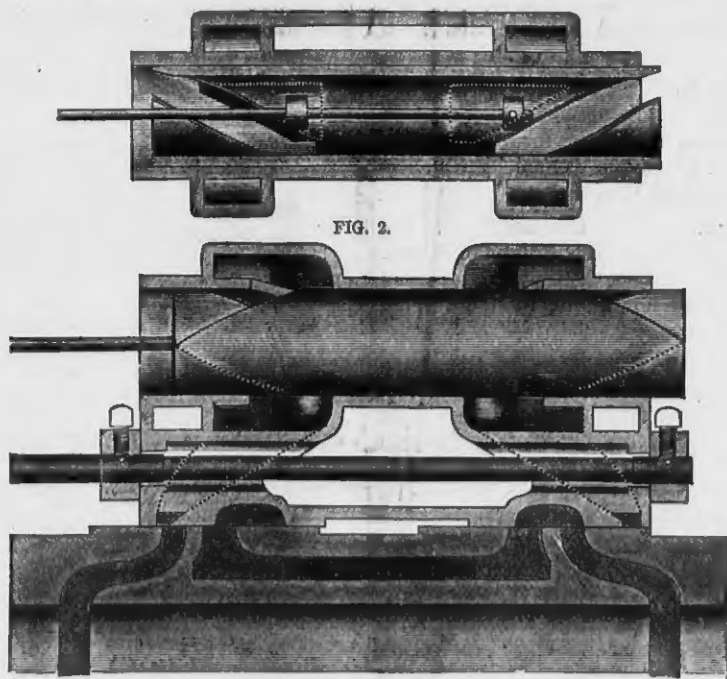


FIG. 3.—AUTOMATIC VALVES.

ing, and in this respect they are without a rival. The secret of this remarkably uniform speed lies first in the peculiar construction of the governor itself, and second, in the fact that it has comparatively no work to perform. The mere rolling of the balanced cut-off valve, while sliding lengthwise in its seat, will readily be seen to require but a trifling amount of force. The governor has, therefore, nothing to do but regulate the speed, without being hampered or loaded with a heavy cut-off valve working under boiler pressure, or with any other resistance, presenting in this respect a marked contrast to many of the automatic engines now in the market. These engines have been placed in many establishments where the very closest approximation to regularity of speed was not only desirable, but an absolute necessity; and it is a fact borne out by the testimony of the users that they give a steadier motion than any other, maintaining it throughout the range of their power, with a variation of not exceeding three per cent. from the normal speed, under the most sudden variations of load.

formity of speed, immediate provision being made by the governor for the most sudden change of load, and the movement of the valve not having the slightest tendency to move the governor arms from their natural position due to the speed.

As a result of the above advantages there is secured in these engines a high degree of economy, which, combined with their simplicity, and recognized durability, make them rank at once among the most efficient and desirable engines in market. These engines are finely fitted and finished, and any further information can be obtained by addressing the makers, who also build steam boilers and other varieties of engines in a large range of patterns and sizes.

UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS.
Subscription Price.....\$1 per year in advance.
Foreign Subscription.....\$1.50 per year in advance.

MILWAUKEE, JULY, 1882.

Market Review.

Prepared expressly for the "United States Miller,"
by Messrs. E. P. Bacon & Co.,
of Milwaukee, Wis.

Wheat has ruled comparatively steady during the past month for present and July delivery, the range in prices on No. 2 having been between \$1.30 and \$1.34 in store. The stock remains concentrated in the hands of one concern, who continue to take all that is offered for July delivery. The same concern holds the entire stock at Chicago also, which has been reduced during the month 1,250,000 bus. by shipments East which it is understood have been made for the account of the "clique," the stock in store there now being only 1,866,000 bushels. The stock in store here has not undergone any material change during the month, being now 806,000 bushels. The aggregate stocks in the country show an increase during the month of 1,027,000 bushels, although the export movement for the month amounts to 2,450,000 bushels, against 1,440,000 bushels the previous month.

Harvesting in the Winter Wheat section has become quite general south of and including Kansas, Missouri and Southern Illinois, but is being retarded seriously by wet weather which has done considerable damage to wheat in the shock in some locations. New wheat is beginning to arrive freely at St. Louis, the receipts there during the past week having been about 200,000 bushels, which, however, is largely short of what has been expected, and short-sellers have consequently had to fill their contracts for June delivery at a loss of from 10 to 15 cents per bushel.

The market to-day receded 1-1/4 cent on No. 2 for immediate and July delivery, closing at \$1.32. Arrivals grading below No. 2 are sold wholly by sample each carload on its own merits, at prices ranging from 3 cents over to 20 cents under No. 2 price; for such as is suitable for milling varying according to soundness, condition and variety of wheat. Straight No. 3, which consists wholly of what the "mixers" put into the elevators of this grade, is steady at \$1.07 in store.

Milwaukee, June 30, 1882.

WE CALL the attention of steam users to the new advertisement of Corliss and improved slide-valve engines, manufactured by Messrs. Weisel & Vilter, of Milwaukee. These engines are in many of the largest manufacturing institutions of the West, and have a very high reputation for power and economy. Parties intending to purchase engines will do well to call on, or write to them.

THE CASE MANUFACTURING CO., of Columbus, Ohio, presents to the milling public through a full page advertisement in this paper the merits of the CASE BREAK MACHINE. These machines have been already quite extensively introduced, and their success seems to be unquestionably assured. The machines have been operating for several months in the Empire Mills of Milwaukee, and proprietors and operatives speak in the highest terms concerning them. We trust that the trade will duly investigate their merits. The Case Manufacturing Co. are well known to the trade, and their efforts to furnish first class milling machinery are appreciated.

The Milwaukee Dust Collector Mfg. Co., of Milwaukee, Wis.

We respectfully call the attention of our readers, to the announcement in a full page advertisement of the above named company. This company has been organized and chartered under the laws of the State of Wisconsin, and the members of the company are from amongst the prominent and wealthy citizens of Milwaukee. The Company has made long and careful examination of the Dust Collector Machine manufactured by them, and its members are entirely satisfied that it has no equal in existence. The Company has ample capital and will place this machine before the millers of the country immediately, and believe that their efforts will meet with the warmest approbation of the trade. No Miller should fail to write to them for their descriptive circular.

The Millers' Mutual Insurance Company of Wisconsin.

The above named company has been duly organized; the following gentlemen constitute the board of directors: J. L. Clement, Neenah; A. A. Freeman, La Crosse; J. C. Fiegler, Manitowoc; S. C. Wiley, Appleton; W. S. Green, Milford; H. Truman, Manitowoc; E. W. Arndt, De Pere; S. H. Seamans, Milwaukee; John Schuette, Manitowoc.

Mr. John Schuette, of Manitowoc, the chairman of the Committee on Insurance, has addressed a circular to Wisconsin millers explaining the affairs of the company and soliciting patronage. We are informed that from all appearances at this early date the company will prove successful. Wisconsin millers should take hold of this matter and

help it along, for it is a matter of direct importance to every flour mill owner in the state. Mr. John Schuette, of Manitowoc, will answer any inquiries addressed to him on this subject.

THE Boston Journal of Commerce has assumed a magazine form, put on a new dress and is as handsome as can be. It is now in its twentieth volume and is a welcome visitor to manufacturers and work-shops everywhere.

Not Too Cool.

An Austrian miller claims that absolutely cool grinding is as injurious to flour as too warm grinding. He has experimented on the matter for a long time. He thinks many roller mills should grind more rapidly than they do, so as to produce a certain amount of fermentation while the grain is being ground. This fermentation caused by a slight degree of warmth during grinding gives an aromatic flavor to the flour that is very desirable.

Indiana State Millers' Association.

The Indiana State Millers' Association met in annual convention at the Grand Hotel, Indianapolis, on the 8th. The meeting was called to order by J. R. Callender, president. The secretary, Richard Thomas, presented his report showing that the present membership comprises 26 members, representing 107 runs. As treasurer, Mr. Thomas reported receipts \$763, disbursements, \$402; balance in treasury, \$361. By resolution it was determined to assess each member \$7 per run to meet the assessment of the National Association. Officers were elected as follows: President, John R. Callender; secretary and treasurer, Nicholas Elles; vice-president, John A. Thompson. The secretary was voted \$50 and thanks for services rendered. Messrs. Pollock, Trow and Paddock were appointed an executive committee.

AIKENS & BRO., of Atlanta, Ga., have ordered some break and other machinery of the Case Mfg. Co., of Columbus, O.

THE Victoria Mill Co., of St. Louis, Mo., have just put in Case's Little Giant Reduction Machine, with capacity for 120 bushels of wheat per hour.

ALEX. AULT, of Bellair, O., has ordered the Case 4th and 5th breaks to replace those he is now using. He has a Gradual Reduction Mill.

D. B. SEARS' SONS, Rock Island, Ill., are putting in a full line of the Case Reduction Machines. They have been using the Case First Break for some time past.

THE Imperial Mill Co., of Clockville, Mo., have just put in a lot of machinery furnished by the Case Mfg. Co., Columbus, O., among which is their Purifier, Break Machine, etc.

MESSRS. ROOT & CO., Cincinnati, O., are putting in more of the Case Break Machines. They have been running them over a year on first break, and are now adding them for some of the other breaks.

JOS. A. GEBHART & SONS, of Dayton, O., have just placed their order with the Case Mfg. Co., Columbus, O., for a full line of their breaks and rolls. They will have a full fledged Gradual Reduction Mill on the Case system.

MILWAUKEE ITEMS.

W. SCHMIDT & Co., wanting to use porcelain rolls for middlings, ordered 4 pair of E. P. Allis & Co., Milwaukee, all in Gray's Patent Noiseless Frame.

E. P. ALLIS & Co., of Milwaukee, are changing over the mill of Andrew Bowling, of Staunton, Va., to the roller system, and will put in 8 pair of sharp cutting rolls for wheat and 2 pair of porcelain for middlings.

THE Great Western Mfg. Co., of Leavenworth, Kas., have just placed an order with E. P. Allis & Co., Milwaukee, for a pair of iron rolls in Gray's Patent Noiseless Frame with belt movement.

J. L. ALLARD, of Paducan, N. Y., has given E. P. Allis & Co. a contract to change over his mill to the roller system. 4 pairs of sharp cutting rolls for wheat and 2 pairs of porcelain rolls for middlings will be used all being in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., Milwaukee, have just received an order from the Salem Flour Mill, of Salem, Oregon, for 4 pair of iron rolls and 8 pair of porcelain rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., of Milwaukee, are changing the mill of John Black, of Sycamore, Ill., to the roller system; the rolls used will be in Gray's Patent Noiseless Frame.

MURRAY & BRADLEY of Marquand, Mo., have ordered of E. P. Allis & Co., of Milwaukee, 2 pair of sharp cutting rolls for wheat and a pair of Wegmann Patent Porcelain Rolls for middlings. These rolls will be placed in Gray's Patent Noiseless Frame with belt movement.

FRANK CLARK, of Hamilton, Mo., is changing over his mill to the roller system. E. P. Allis & Co., of Milwaukee, are doing the work and will put in 10 pair of sharp cutting and smooth iron rolls, and 4 pair of Wegmann Patent Noiseless Frame with belt movement.

C. A. ROBERTS, of Fargo, Dakota Territory, has contracted with E. P. Allis & Co., of Milwaukee, to increase the capacity of his mill by 6 pair of smooth rolls and 6 pair of porcelain rolls and a 14x12 Reynolds Corliss Engine. The rolls will run in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., of Milwaukee, are changing over the mill of Keines & Williams, of Logan, Ohio, and will put in 10 pair of iron and 8 pair of Wegmann Patent Porcelain rolls, all in Gray's Noiseless Frame.

E. P. ALLIS & Co., of Milwaukee are building a 1000 barrel mill on the roller system for C. Sperry & Co., of Stockton, Cal. Messrs Sperry & Co. will use 54 pair of iron rolls and 6 pair of Wegmann Patent Porcelain rolls. These rolls will be in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., of Milwaukee, in changing over the mill of Johnson & Jarrett, of Des Moines, Iowa, will put in 8 pair of Gray's Patent Noiseless Roller Mills with belt movement.

D. D. WING & Co., of St. Louis, Mo., have placed an order with E. P. Allis & Co., of Milwaukee, for 12 pair of rolls in Gray's Patent Noiseless Frame.

E. P. ALLIS & Co., of Milwaukee, are in receipt of an order from the Cockle Sep. Mfg. Co. of Milwaukee, for 8 pair of rolls in Gray's Patent Noiseless Frame.

E. P. ALLIS & Co., of Milwaukee, have recently shipped to prominent millers in London, England, 10 pair of rolls in Gray's Patent Noiseless Frame, and 6 of Gray's Purifiers.

S. R. CROSS, of San Francisco, Cal., has just ordered of E. P. Allis & Co. 6 pair of rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., of Milwaukee, are in receipt of an order to ship 10 pair of rolls to J. H. Townsend & Co., of Stillwater, Minn., the rolls to be in Gray's Patent Noiseless Frame with belt movement.

CHISHOLM BROS. & GUNN, of Chicago, have placed orders with E. P. Allis & Co. for 10 pair of iron and two pair of Wegmann Patent Porcelain rolls in Gray's Patent Noiseless Frame with belt movement.

HOFFMAN & BILLING, of Milwaukee have lately placed an order with E. P. Allis & Co., of Milwaukee, for the engines to be built for the new Madison water works; they will be Reynolds Improved Corliss Engine with Cylinders 14x36 and 18x43.

THE Philip Best Brewing Co., of Milwaukee, ordered of E. P. Allis & Co., of Milwaukee, an 18x20 Reynolds Corliss Engine for their new malt house.

J. H. KERRICK & Co., of Minneapolis, Minn., have ordered of E. P. Allis & Co., of Milwaukee, two of Reynolds Improved Corliss Engines, the cylinders of one 14x42 and the other 12x36.

E. P. ALLIS & Co., of Milwaukee, are in receipt of an order from E. Bradford, of Sparta Center, Mich., for a 14x36 Corliss Engine.

J. E. ELLWOOD & Co., of De Kalb, Ill., have recently placed an order with E. P. Allis & Co. for a 20x42 Reynolds Corliss Engine with Reynolds Improved Heater.

E. P. ALLIS & Co., of Milwaukee, have the contract for increasing the capacity of the mill of The Goodlander Mill & Elev. Co., of Fort Scott, Kas. They will use 20 pair of iron and 12 pair of porcelain rolls in Gray's Patent Noiseless Frame. The power to run this mill will be a Reynolds's Corliss Engine 20x48 which is being built by E. P. Allis & Co.

THE Minneapolis Harvester Works, Minneapolis, Minn., have placed an order with E. P. Allis & Co. for an 18x48 Reynolds's Corliss Engine.

E. P. ALLIS & Co., of Milwaukee, have an order to ship Wardell & Hinkley, of Chicago, a 14x36 Reynolds's Corliss Engine.

E. P. ALLIS & Co., of Milwaukee, are to ship Hale Bros. of Lyon, Mich., 6 pair of rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. ALLIS & Co., of Milwaukee, have an order to ship to T. R. Grabbill & Bro., Millersburg, Pa., 4 pair of Gray's Patent Noiseless Roller Mills.

JOHNSON & CUNNINGHAM, of Centralia, Ill., are changing over their mill to the roller system, they will use two pair of sharp cutting rolls in Gray's Gradual Reduction Frame and 2 pair in Gray's Patent Noiseless Belt Frame. E. P. Allis & Co., of Milwaukee, are doing the work.

THE MILWAUKEE DUST COLLECTOR MFG. CO. report an order from the New Era Milling Co., Milwaukee, to furnish them machines enough for all their purifiers, etc. This mill will hereafter dispense entirely with the old-fashioned dust-room. This is the first mill in the United States dispensing with dust-room entirely.

THE most important machine for mills nowadays is a good dust collector. The machine manufactured by the Milwaukee Dust Collector Mfg. Co. is without any question a success having proved so in mills in Minneapolis and Milwaukee, where machines have been in constant use for nearly three months.

From California.

A Letter from W. D. Gray, Milwaukee's Favorite Milling Engineer.

A CALIFORNIA BRANCH OF E. P. ALLIS & CO. ESTABLISHED.

SAN FRANCISCO, June 1st, 1882.

Editor United States Miller:

Before leaving Milwaukee, I promised to write to you soon after my arrival in the Golden State and I will now try to redeem that promise. I arrived here about eight days since. The journey from Chicago occupied just five days and nights of continuous railroad travel. During much of that time we passed over treeless prairies, deserts and mountains. It has been said that nothing has been made in vain, but I have not yet decided in my own mind just what much of that country is intended for. It may be that it is unfinished and that when it is completed ages hence, it may become the garden of America. I have not seen much of the country yet, and thus far I have only visited Stockton, San Jose and Sacramento. From my short experience I should judge that San Francisco, in regard to climate, is somewhat unfortunate. We get here the cold winds and fogs from the bay. I have worn my overcoat nearly every day since my arrival here. If you go inland, however, a short distance and a little south, you come to a country of fruits and flowers and "fit for the gods to dwell in."

I am busy figuring on a 1,000 barrel mill, and when I get through with that I intend to see a little more of the country. I find our old friend George Smith, formerly of Milwaukee, established here in the mill-building business and he is doing a good business. He

has changed several mills here over to the roller system with good results. Of course it could not be otherwise, as he is a good millwright and is using the best roller in the world. He is now engaged in building a new 300 barrel roller mill in this city, known as the Yosemite Mills and owned by Spirall & Faman. There are no stones used in this mill and the rolls to be used are Gray's Patent Noiseless Roller Mills, which, by the way, I may say here, you will find wherever you find the choicest brands of flour manufactured.

Hon. Horace Davis, of San Francisco has just got his mill started since changing it over to the roller system. He is using about 40 roller machines, no stones; is turning out 1,000 barrels per day and is doing good work, at least so it is reported.

The millers of the Pacific coast are just getting "woken up" to the advantages of the roller system and are convinced that something must be done, but they do not like to throw away their millstones and it will take some time yet to get them thoroughly converted as it did our millers at home, but the time will come soon when they will see and fully understand the advantages of our most modern improvements and will adopt them.

Most of the mills on this coast are small, ranging in capacity from 50 to 200 barrels per day. With a few exceptions they are not only small but crude in construction, but they rattle away and most of them are making money. Put these same mills in Milwaukee or Minneapolis and they would not pay to run a day. You might ask—why can't they they run here? I think the reason is plain. They have better and cheaper wheat. Not long ago wheat was shipped from here to Minneapolis and sold there at from five to ten cents per bushel cheaper than their native wheat. So you see that wheat here is cheap and I think better. It is not an uncommon occurrence here to find wheat that will weigh from 65 to 68 pounds to the bushel and these mills take five bushels and over to make one barrel of flour and still they have run these mills and made money. What a difference between this wheat and that which we have been grinding in Milwaukee during the past winter—in the Daisy Roller Mill for instance! It would weigh ten pounds per bushel less, and poor samples less still, and yet we made a good yield and excellent flour. To do this, however, it is necessary to have the best of modern milling machinery.

I find the tendency here is, with millers putting in the roller system, to try to make too much flour for the amount of machinery used, and consequently these mills do not give the best results but are a great improvement on the stone mills, which they have supplanted. This is bound to become a great milling country and men desiring to build new mills will do well to look at this country. With cheap wheat and all water freight to Europe, it looks to me as if a good mill here has decidedly the advantage of one in an Eastern state.

I grieve to read the announcement of the death of Gov. Washburn. Who, of all connected with the milling industry does not mourn the event. We feel as if we could not spare him, but as it has pleased our great Creator to take him away we must submit. Peace be to his ashes. He lived a noble life and left the world better than he found it. What more can man accomplish than to benefit the world by living in it.

Gov. Washburn has done more for the milling industry than any man of this age. It was his mill and his money that introduced the middlings purifier into this country. It was Gov. Washburn who caused the first roller mill in America to be built and proved it to be a success. It will be long before the trade will see his like again. The millers of America might, with a display of good taste, erect a monument to his memory, though without any shaft of marble to mark his resting place, we may well believe that his name and the results of his enterprise and labor will never die.

Yours truly,
W. D. GRAY.

P. S., June 8th, 1882.—I have just returned from Stockton by river. It is about 90 miles from here to Stockton by rail and about 150 by river, the river being very crooked. As I could make my journey during the night and enjoy a pleasant evening on the steamer, I went to Stockton and returned by the river route. Stockton is where Mr. Sperry's mill is located. It was destroyed by fire April 2, last, and he has now started to rebuild it, for which we have just taken the contract. It will be a 1,000 barrel mill using Gray rollers throughout, except five pair of millstones for fine middlings. They are not yet quite satisfied to rely on rollers entirely, but they will, no doubt, soon be so. Mr. Sperry's mill will be 100 feet long, 90 on the ground and five stories in height. It will have heavy, red brick walls of a very neat design, giving it a very imposing appearance. I think it will be the finest millhouse on this coast and expect the inside machinery and arrangements to be second to none either here or in the East. Mr. Sperry is one of the most prominent and successful millers on this coast and there is no doubt but that with the mill we will build for him, he will make money. The plans have been made while I have been here under the directions of J. R. Cross and myself. Mr. Cross will remain in this state and run a branch of E. P. Allis & Co's business of which he will be manager and I think we will have a good share of the mill-building business of the Pacific States. I shall take a short trip to Los Angeles and then start for home, where I hope to find all things well. I am,

Yours truly,
W. D. GRAY.

GLAD TIDINGS OF GREAT JOY

TO MILL OWNERS WITH DUSTY MILLS AND CLOUDY BROWS.

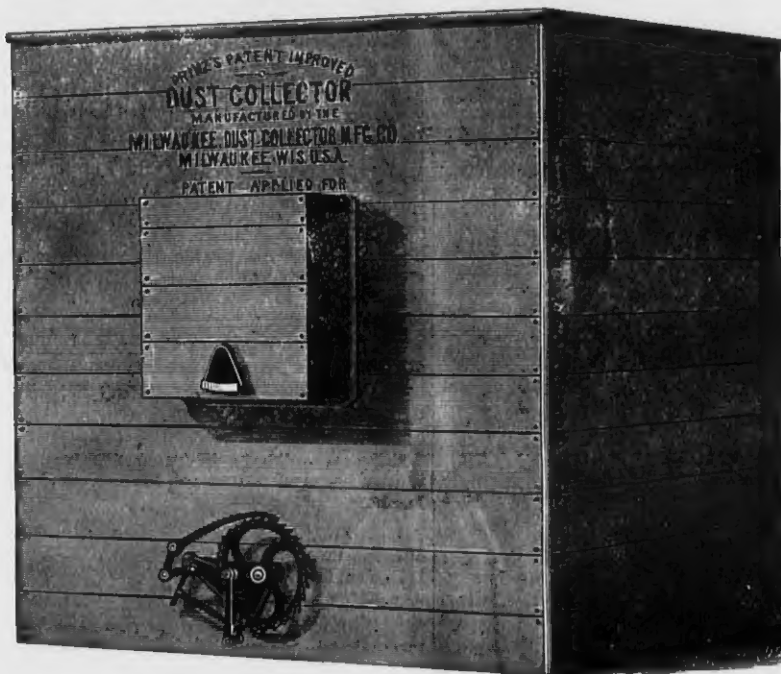
An Important Problem Solved at Last.

Taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

PRINZ DUST COLLECTOR.

After years of study and experiment success has crowned the labor of F. PRINZ. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature
in this machine.



NO DEAD AIR CHAMBER.

The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBER.

LESS POWER IS USED

with this machine than any other as there is no *back pressure* on the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome dusty, dirty old-fashioned dust room entirely and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

IT RETAINS THE DUST IN THE MILL,

thus allowing no waste of stock by being blown out into the air as is the case with the old fashioned dust-room.

It does away with the liability of dust explosions as the air coming from the machine is *entirely free from dust*, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers

GUARANTEE ENTIRE SATISFACTION

in the use of this machine.

Our machine *does not infringe on any patent*, which we fully guarantee; on the other hand we caution parties against purchasing *infringing machines*.

LOW PRICES FOR EXCELLENT MACHINES.

TESTIMONIAL.

MILWAUKEE DUST COLLECTOR MANUFACTURING CO:

Gentlemen,—The Dust Collector you have put in on trial in our Mill is giving the same satisfaction as when first started, over two months ago. We have therefore concluded to adopt your machine for all our Purifiers, Roller Exhausts and Cleaning Machinery. You will please make as many Machines for us as are necessary. Yours Truly,

Milwaukee, June 18th, 1882.

NEW ERA MILLING CO.

More testimonials are given in our circular, for which please address

Milwaukee Dust Collector Mfg. Co.

Milwaukee, Wis. U. S. A.

[Please mention the United States Miller when you write to us.]

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

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[Entered at the Post Office at Milwaukee, Wis., as second class matter.]

MILWAUKEE, JULY, 1882.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882, was completed, ready for delivery February 1, 1882.

It shows that there are in the United States 21,346 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 888; Arizona, 17; Arkansas, 234; California, 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 8; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363; Michigan, 331; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennessee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances. This work is indispensable to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

We call the especial attention of our readers to the "IMPORTANT LETTER TO MILLERS" from the STILWELL & BIERCE MANUFACTURING CO., of Dayton, Ohio.

A BOSTON writer predicts that wind-mills will, in the near future, be used extensively for the purpose of generating and storing electricity for use as desired.

Our readers who are about to purchase bolting cloth, will do well to read the new announcement of Messrs. Howes, Babcock & Ewell, of Silver Creek, N. Y., printed on another page. Purchasers of this firm may rest assured that they will get goods exactly as represented.

The immigrants that landed in New York last year came from the different countries as follows: Germany, 199,000; Ireland, 64,000; England, 39,000; Sweden and Norway, 50,000; Italy, 18,000; Switzerland, 12,000; Scotland, 11,000; Russia, 11,000; Bohemia, 10,000.

If anyone doubts that the Southern States are not rapidly developing their manufacturing and agricultural interests let him take a copy of *The Tradesman*, published at Chattanooga, Tenn., and glance through its advertising and reading pages. Our word for it, he will be converted. The South is rapidly developing its wonderful resources and is attracting the attention of enterprising observers everywhere. Long may her present prosperity continue and increase.

THE President of the United States has appointed the following committee to revise the tariff: John L. Hayes, of Mass., (chairman); Henry W. Oliver, Jr., of Pa.; Austin M. Garland, of Ill.; Jacob A. Ambler, of Ohio; Robert P. Porter, of the District of Columbia; John W. H. Underwood, of Ga.; Duncan F. Kenner, of La.; Alexander R. Boteler, of W. Va.; William H. McMahon, of N. Y. The majority of the members are strongly in favor of a strong protective tariff.

THE PHOENIX FOUNDRY AND MACHINE WORKS, of Terre Haute, Ind., have recently enlarged their capital, shops, and general manufacturing facilities and are better than ever prepared to turn out large quantities of mill work. Our old friend Jonathan Mills,

known the world over as an inventor of flour mill machinery, and designer and builder of flour mills, assumes the position of general manager. Among the machines manufactured by this establishment are the JONATHAN MILLS CENTRIFUGAL BOLTING REELS and improved ROLLER MILLS. The Company will also make a specialty of furnishing MILLS' GRADUAL REDUCTION MACHINES and will also do a general mill-furnishing and mill-building business. The Phoenix Foundry and Machine Works have a fine reputation amongst millers and now they are better prepared than ever before to meet promptly all of their many wants.

Death of Samuel Babcock.

Mr. Samuel Babcock of Silver Creek, N. Y., father of Mr. Babcock, of the firm of Howes, Babcock & Ewell of that place, while taking a walk on the afternoon of June 11th, was struck by a passing freight train and instantly killed. "Uncle Samuel," as he was fondly called by his fellow citizens, was universally beloved for his kind and genial ways. The large force of workmen in the Eureka Smut Machine Works, which he often used to visit, passed resolutions of condolence and attended his funeral in a body. Mr. Babcock was in his 90th year when he was so suddenly summoned to that better land beyond. We extend our heartfelt sympathy to his family and friends.

[Written for the UNITED STATES MILLER.]

Plain Talks About Milling.

By RICHARD BIRKHOLZ, M. E.

(Continued from June number.)

An indirect saving can be made by always buying good machinery. Many millers will buy from the lowest bidder and mill furnishers aiming to sell only the best machinery cannot compete in price with those who slight work in order to make a margin on a low bid. Each will manage to earn about the same; they all desire to make money. I believe it will pay any miller to buy of such mill furnishers as have gained, and are ambitious to maintain, a reputation by manufacturing good, well-finished machinery. The results of cheap contracts are unround, badly turned shafts; shafts which are of uneven diameters; shafts which will let a pulley or gear slide on loosely at one end and have to be filed towards the middle to admit it to its place of destination; couplings which fit loosely on the ends of the shafts instead of being drive-fit, which after being keyed on, are not square on the shafts and which, after the bolts have been put in and tightened, will "spring" the shafts, causing them to wobble around, wearing and loosening the boxes, consuming power, wobbling the pulleys on them in all directions. A well-made coupling requires time, skill and absolute correctness of workmanship. Poor fitting pulleys are another result of cheap work; they will not go onto the shafts at all or else they will go on too loosely and after the key or set-screw is tightened they will run untrue and out of balance, shaking the entire mill-floors. Then badly fitted gearing, which will not run on the pitchline, on account of being bored eccentrically or slanting, is another result of cheap work. Such gears cause an intermitting noise whether they are of iron or core and iron. Among other cheap things I will mention, green maple cogs, poorly set and dressed core-wheels, badly trimmed pinion teeth cheap and nasty babbitt, poor belting and elevator cups, leaky bolting chests with loose joints, green lumber, conveyor shafts of green wood, warping up and cutting conveyor boxes. Poorly fitted keys are constantly in danger of working loose and dropping out, thereby causing breakages and delays. I would therefore advise millers to make their purchases from manufacturers or dealers of whom they are well convinced that they will supply only good machinery.

Many millers are inclined to regard the millwright as one seeking to despoil them of their cherished wealth, but if they are good correct advisers, they should be esteemed as their best friends. The millwright must necessarily have the entire confidence of the millowner consulting him, and also of the mill furnisher by whom he is employed and sent to the mill-owner. His salary in a mill-furnishing establishment is proportionate to his capability as shown in his dealings with millers. A good and faithful millwright has the prosperity of the miller employing his services constantly in view. It is to his interest to economize for the miller and millers should not overlook this fact.

The millwright visits a mill, and is asked to

use his best judgment in effecting a change embodying the latest improvements. He examines the building; he finds low and few stories and feels somewhat discouraged; he feels still worse when he finds a cupola roof, contracted upper story with waste-room under the main roof.

When the miller consents upon his advice to take away the roofs and carry up the building full size, making high stories of such gained room and putting on a flat roof, the millwright begins to "take some heart into his work." Then he feels cheerful and as if he could accomplish something desirable.

A new process mill must have high stories—a building with basement and four to five stories above. I do not say that a new process mill cannot be made out of a cupola topped building with few floors—oh, no—but a surplus of elevators, shafting and gearing must be resorted to. Elevators will be present everywhere and more money is spent sometimes in rebuilding such mills with an unfavorable building than the changing of the building would cost and besides this a great deal of power is lost in extra gearing.

If millers would only make it a point to go and visit good mills before they change their own, they would see how little room is wasted by so many elevators, all standing in line, admitting passage between their legs, all plumb and on one shaft. They would see how necessary it is for driving and spouting to the chests and purifiers if they stand in a certain direction relative to the rolls. Having seen these things so necessary, they would more readily consent to follow the suggestions of the faithful millwright—make a clean sweep and place the machinery as it ought to stand for convenience sake. They can re-utilize nearly all of the old shafting, pulleys and gears, all belts, elevator boots, etc.

Remember that a good millwright does not simply care for placing a few rolls; he is ambitious to see the miller do the best possible work therewith in conjunction with the rest of the machinery. He will draw up a diagram, the fruit of mere hard earned experience, decide upon the cloth to be used and how the stuff must be handled. In this manner he differs vastly from the agents, who will "talk the head off" of a miller to sell him some machines and then leave him to his own unaided endeavors to make his investment pay.

Unscrupulous agents try to "get on the right side" of the miller by telling him that a small outlay will do wonders; will enable him with his poorly constructed mill to rival the best mills in the country. This class of agents are ready to stone the faithful millwright, who, by conscientious advice, as circumstances may justify, recommends the miller to "gut his mill." Excuse me for this denunciation of "cheap John" millwright (?) agents, who are doing much to injure the fair milling prospects of this glorious country.

I dare say many millers understand the usefulness of the designing millwright almost too well, for mill building establishments are frequently overrun with millers wanting experts to examine their mills and asking for drawings and plans. The millwright is often compelled to lay aside jobs already ordered and attend to the wants of speculative millers. He will consult with them, make measurements of their mills, make drawings, specifications, estimates, and finally draw up the contract. When this point is reached, the enthusiastic owners frequently come to a dead stop, like Old Grandfather's Clock. They conclude they do not want to build or that they want to ask some other builder, trying to get a cheaper (and nastier) job. The millwright will then reach out his hand for a reasonable remuneration for his lost time, and then—well, there have been cases where the millowner refused to pay.

If contracts are signed, the millwright's time must be paid for, for in this country nothing runs without it is greased; "every hen must have her kernel of corn;" and in some shape the miller must pay. And why should not the millwright be paid for his work in planning and designing mills, when architects call for and obtain for their temple drawings 1½ to 2 per cent. of the total cost of building? A millwright's duty is more tedious and requires more skill than the architects.

In the old bolting chests where "returning" was followed, the reels generally pitched in different directions. It is profitable in any case to lay reels all one way even if it is necessary to rebuild the chest. Conveyors are thus saved and that means improved mill products. Conveying of middlings and products of rolls ought to be done away with as much as possible. Middlings going to puri-

fiers must never be conveyed, as they will make dust on the way which will be blown into the dust room and either clog the cloth or penetrate and get back into the mill or be blown out of the mill and wasted. Middlings from the purifiers ought not to be conveyed to exceed 10 feet, for a fine, soft, atomized flour dust will be produced, impairing the absorbing and baking capacity of the rest of the flour with which it is mixed.

Flour may be conveyed without harm for the molecules are so far reduced that they will not powder by the action of a conveyor. Breaks and products of smooth rolls ought not be conveyed to exceed 6 feet, on account of producing flour dust; if such are conveyed for a short distance, the flights of the conveyors must be iron in order to shove along the stuff without stirring it up.

The roller bodies running about 580 feet per minute, throw off centrifugally a great portion of dust which will crowd out through the crevices of the hopper, etc., tend to make the grinding floor dusty.

E. P. Allis & Co. put on iron flighted conveyors below the line of rolls from which the air is gently exhausted by a fan, which delivers it into a separate cloth dust room, (Kirk & Fender). The conveyors are placed below the joist but are spacious in size over flights, serving as a dust trunk, and between the joists or just below them cross trunks are placed communicating with space over the conveyor and with the fan. This arrangement accounts for the dustless floors found in mills constructed by this firm. Conveying is not aimed at—the meal is simply gathered into the conveyors to discharge out of one spout into the elevator. The meal is not conveyed over five feet.

The loss of dust through slatted windows of old-fashioned dust rooms is calculated to be about ¼ of one per cent. of wheat ground; this would be in a 1000 barrel mill 2100 lbs. per 24 hours. We will calculate three-fourths of this to bring the price of shorts—about nine dollars, and the rest about 2½ barrels of stuff considered to be low grade, amounts to about ten dollars; thus a wasting of nineteen dollars per day is suffered by a poor dust-room in a 1000 barrel mill or \$5,700 per year. Besides that a great amount of coal is lost on account of the warm air of the mill being sent out of the building. Here a saving may be effected by even the smallest mill owner.

It has been satisfactorily proved by experiments and long practice that millstones require more power to accomplish certain results than rolls. The heavier the mass the more power is required to keep it revolving. This is an old theory in mechanics. Stones have a greater working surface than rolls, hence they consume more power. It is advisable to substitute rolls with suitable grinding surfaces, for millstones, for working on any kind of millstuffs, even when taking into consideration only, the gain of power. The greatest gain of power yet observed by doing work with rolls that was formerly done with stones, is in that of the granulation of corn. Rolls with dull corrugations require more power than sharp dressed rolls, for the reduction of wheat by bruising or squeezing requires greater pressure. In case of sharp dressed rolls the power lost by friction in bearings, is as great as the power required for grinding. This pressure, respectively loss of power, is far more annoying where the rolls are provided with dull dress. The dull rolls, moreover, have to run at greater velocity than sharp dressed rolls to granulate the same amount of wheat, hence the bearings are more liable to heat.

WHEAT CLEANING MACHINES, especially the smutters, consume a great deal of power. I have indicated a 600 bushel receiving separator in one case and found it to consume 6½ horse powers. A 100 bushel smutter in another case consumed 16 horse power! In buying cleaning machines be careful to purchase only light running machines able to give good results. Do not buy smutters or decorticators which will overdo the requirements and act too severely on the bran. The thicker the bran is left by the smutter, the larger it will be when finished and the less it will pulverize in the breaks. The main duty of the smutter is to scour off the fuzz on the end of the wheat berry. The dirt in the crease can only be removed partly by a brush and entirely by a brush and first break rolls.

A well-planned mill with as few gears, shafts, elevators, belts and conveyors as possible; with good and substantial furnishings, built by careful and correct millwrights will also greatly contribute towards the economization of power.

(To be Continued.)

A New Mechanical Dictionary.

Since the completion of KNIGHT'S AMERICAN MECHANICAL DICTIONARY, in 1877, the progress made in the development of the mechanic arts is unprecedented in the history of the world. Not only in such striking and wonderful achievements as relate to the telephone, phonograph and electric light, toward which popular attention is naturally drawn, but in every department of applied mechanics, there has been developed a fertility of resource in the adaption of means to ends quite as marvelous and equally important in practical results. Achievement has outrun the most sanguine expectation, and with such rapidity that even the most recent records are found to be very deficient in supplying information most desired.

The hearty approval which KNIGHT'S AMERICAN MECHANICAL DICTIONARY has received in all parts of the world has encouraged the publishers to issue an entirely new volume, thus continuing the record from the date at which the former work went to press, but carefully avoiding repetition, and aiming to furnish not only a satisfactory supplement to the original work, but a book which shall have an individual and separate value as a complete record of half a decade in the history of invention. From this fact it is evident that this volume forms an indispensable supplement to all works of reference upon mechanics now extant, as none of them cover the period mentioned.

The same method has been adopted in dealing with the subject matter in both works. First, each article appears in its proper alphabetical place, thus fulfilling the function of a dictionary, in affording direct response to inquiry. Second, the items of information thus distributed throughout the work are classified in Special Indexes of the Art, Profession or Manufacture to which they pertain. The book thus fills the function of a Cyclopædia, which is a collection of treatises.

The value of a work of references depends largely upon its index. When one has a question to ask of an ordinary cyclopædia it is frequently very difficult to determine under which title or heading to look.

The author has invented a system of what he terms "Specific Indexes," by the use of which the inquirer is guided straight to the information he is in quest of, even though he be entirely ignorant of the name of a thing, and have but the most vague and general notion of its use. This is accomplished by grouping under the general title of each Science, Art, Trade, or Profession, a list or "Specific Index" of every article in the book bearing any relation to the subject in question. The titles of these Indexes are in turn grouped at the beginning of the book, so that by a glance one may determine which clew to follow.

Beside the use above mentioned, these specific indexes afford the reader an excellent opportunity for investigating thoroughly all that pertains directly or indirectly to any special subject, by using the index under the title of that subject as a sort of head-center, and following out its various branches through all their ramifications.

Special attention is called to a new and valuable feature in the work, by means of which exhaustive information on any subject is placed within easy reach. The author has made a complete index to technical literature, covering a period of five years, and embracing all English and American technical journals published from 1876 to 1880 inclusive. Under title of each subject may be found a complete list of every article which has appeared, during this period, in the columns of these periodicals and as every subject of importance has been thoroughly discussed therein, it is evident that the whole range of recent investigation is thus placed at easy command. This Index cannot fail to

meet with the heartiest appreciation among those who have experienced the labor and difficulty attending an exhaustive search upon any line of inquiry.

"Index-learning turns no student pale,
Yet holds the eel of science by the tail."

The work treats many thousand subjects, and is illustrated with over 2,500 carefully prepared engravings, and numerous full-page plates, and for general typographical excellence, quality of paper and printing, it is unsurpassed. It may be bound uniform with any edition of the Knight's American Mechanical Dictionary, or with any cyclopædia or other book of reference of the usual size and shape. Sold only by subscription in four sections, containing 240 pages each.

For further particulars address the Publishers, HOUGHTON, MIFFLIN & Co., Boston, Mass.

Built-up Work in Engine Construction.

BY HORACE SEE.

[A paper read before the American Society of Mechanical Engineers.]

This paper is intended to treat, in as general and brief a way as possible, of some of the advantages resulting from the use of built up work in engine construction.

It will be desirable for you before proceeding farther, to understand what is meant by the term "built up" as applied to the subject under consideration. We mean a structure

hammer can fashion each piece to near the required shape, where but a small portion of the tough material has to be removed, and where the risks are a great deal less. All of these requirements are met by the built-up system, which has also the additional advantage of furnishing to the forge such shapes as can be more easily made with the fibres of the material running in the proper direction.

With castings the evils resulting from crowding too much into one piece are of an analogous character. We will take a bed-plate to illustrate this. Two patterns, each consisting of one fore and aft and two athwartship members have to be made and the mold for each built up in loam.

It is quite likely that the molding of one will have to follow the other on account of a limited amount of room in the foundry, either on the floor or in the oven. In the machine shop the largest planing machine is called into play, and that, quite possible, not able to plane more than one piece at a time. Each piece will also have to be set twice.

Here the evil is not so much from the weakness of the structure as from the adoption of a slow and expensive system. This system will doubtless have to give place to the built-up, by making each member of the bed separate, where but one pattern is required for the athwartship, and another for the fore and aft pieces. This subdivision also

the direct line of what he has set out for quite as much for the exercise of all the faculties of the mind as there is in any other direction in the world. In other words, he should start out to learn something quite different from the commonly accepted idea of a trade—something to which the skill of his hands is only secondary. Not by any means that the acquirement of the highest degree of manual dexterity should not be striven for but that from the beginning he should fully appreciate that that is only incident to the real business he is to learn.

The young man who is destined for one of the professions is fitted by a course of study, not educated for the profession, but fitted so that when he comes to the practical part of it he shall be in a condition to educate himself. It is considered in his case, and rightly enough, that a system of training is absolutely essential to success, and so some years are devoted to the task of learning how to learn.

In the case of the prospective mechanic it is not thought that any preliminary training is at best more than a convenience. The difficulty however, is not entirely, nor mainly, that the prevailing idea combats the theory that a young man who is to follow mechanical pursuits should be taught to reason systematically by some sort of previous educational training, but that the sentiment is not impressed as it should be that as he learns to use his hands he should just as systematically learn to use his

higher faculties. In a word, the popular idea of a trade needs to be vastly enlarged, and made to comprehend what really constitutes a mechanic. In this way a young man may be able to understand in the beginning what it sometimes takes him years to learn—takes him so long to learn what to do, that he never begins to do it.

It would be foolish to call a man a surgeon who knows how to cut, but not when or where. It is equally foolish to call a man a mechanic who knows how, but not when or why to do a thing.

Another fallacy, and one which has much to do with fostering the belief that it is not worth while to interest anything but muscle in the case of the mechanic,

is that there is not so much ahead of the mechanic as there is ahead of the professional man. This notwithstanding it is contrary to all facts, is the prevailing opinion.

If from 200 boys 100 are taken, indiscriminately, for any of the professions, and the other 100 are devoted to mechanical pursuits, giving each equal advantages in the way of preparation and education, each with the special object in view, in the end the average condition of the mechanic will be the best. Not only this, but the probability of some of their number reaching a position of eminence before the world is also better. There will be more absolute failures amongst the professional class than amongst the other—that is, failures to make a respectable living, because that part of the business done with the hands alone will be worth more to the mechanic than to the other.

Nothing is more essential to the mechanic than an appreciation of the fact that, quite as much as the professional man, he needs an education other than that of the hands; in other words, that becoming a skilled workman is only one of the means to an end.—*American Machinist.*

It is not many years since, that the number of cotton mills in Canada could be counted on the fingers, and when the number of spindles was less than 50,000. A recent collection shows us twenty-one cotton factories, aggregating nearly 400,000 spindles, and more are now projected. It is a somewhat curious fact that the larger proportion of the quantity of machinery for the whole 370,000 spindles has been supplied by the one firm of Howard & Bullough, of Accrington, England. Nearly, if not quite, two-thirds of this machinery came from this one shop.



GROTTO AND AQUARIUM OF THE TROCADERO.—PARIS, 1881.

(From Knight's Mechanical Dictionary.)

formed by the union of several simple members, these members or pieces being such as can be most conveniently, quickly and economically made to give the required strength. Some object to this form of construction from mistaken ideas of economy, others from a false interpretation of beauty, but the largest class from extreme conservatism.

The advantages can be better understood by considering how a few of the forgings and castings, shown in the accompanying illustrations, entering into the construction of a compound marine propeller engine, are made.

The following extract from a letter in *Engineering*, of August 19, 1881, strikes the keynote of the subject: "The fact will doubtless have its influence for all time coming when the shafts for gigantic steamers are to be ordered, as it is absolutely impossible to insure that a forging shall be perfectly sound and destitute of flaws if, when it leaves the hammer, it is such an immense and ponderous mass as to weigh fully thirty tons, as did the one fitted into the *Servia*, being eventually finished, however, at about eighteen tons in weight. All such shafts in future will doubtless be built."

The same argument applies to the solid forked connecting rod, which requires about 50 per cent. of its weight to be taken off after leaving the hammer, with the attendant risk of not discovering the flaw until near the completion of the work. The impossibility of insuring soundness in forgings which require 40 to 50 per cent. of their weight to be taken off after leaving the hammer to bring them to the proper finished shape should certainly cause the abandonment of a practice with so much uncertainty hanging over it, and lead to the adoption of one where the

allows you to make the castings in greensand. All of the athwartship pieces can be planed together at one setting, as well as the fore and aft one, on a smaller planer than in the other system.

This subject could be elaborated, but I think enough has been said to call attention to and furnish food for reflection upon a very important part of steam engine construction.

Mechanical and Professional Education.

It would appear to be the general belief that it requires talent of a different and higher order to insure success in other of the affairs of life than it does to succeed as a mechanic. This is one of the commonly accepted fallacies, which, without foundation in fact or reason, has been productive of a great deal of harm. Acting from these considerations, a boy who is thought to be too dull to get along in any of these so-called learned professions is believed, without any preliminary preparation, to be as sure of success in a mechanical direction as any one.

Probably the foundation of this fallacy would be found as far back as the time when there was supposed to be no occasion for a man who worked with his hands to make any particular use of his head. However this may be, this fallacy, handed down through hundreds of years, clings to the present time like many another false idea that ought to have disappeared generations ago.

The young man who looks to mechanical pursuits for a vocation should in the beginning divest himself—and in this he should be assisted by those of greater experience—of the idea that the great end and aim of his life is to become an adept in the use of the tools of some trade, or that there is not in

The Cuckoo Song.

OR, HOW THE MILLER WON HER.

O Kitty Bell, 'twas sweet, I swear,
To wander in the spring together,
When buds were blooming everywhere,
And it was golden weather!
And down the lanes beside the farm
You roamed beside me, tripping lightly,
Blushing you hung upon my arm,
And the small gloved hand pressed tightly!

And the orchis sprang
In the scented meadow,
And the throats sang
In the greenwood shadow:
And your eyes were bright
With happy dew,—
Could I doubt a light
So divinely blue,
When you kiss'd and sighed
"I will be true!"

Cuckoo!
Though far and wide
The brown bird cried—
"Cuckoo! cuckoo! cuckoo!"

O Kitty Bell, the cry seemed sweet!
For you were kind, and flowers were springing;
The dusty willow in the heat
Its woolly bells were swinging,
And in its boll the linnet brown
Finish'd her nest with wool and feather,
And we had thought of nesting down
In the farm by the mill, together.

And over the hill
The breeze was blowing,
And the arms of the mill
Kept coming and going;
And who but love
Was between us two,
When around and above
The flittermice flew,
And as night drew nigh
You swore to be true!

Cuckoo!
I heard the cry
From woods hard by—
"Cuckoo! cuckoo! cuckoo!"

O Kitty Bell, 'tis spring again,
But all the face of things look iller;
The nests are built in wood and lane,
But you are nested with the miller.
And other lovers kiss and swear,
While I behold in scorn and pity,
For "all," I cry, "is false and fair,"
And curse the cuckoo and Kitty.

And over the hill
The breeze is blowing,
And the arms of the mill
Keep coming and going;
And the hidden bird
Is singing anew
The warning I heard
When I trusted you;
And I sicken and sigh,
With my heart thrilled through.

Cuckoo!
Wherever I fly
I hear the cry—
"Cuckoo! cuckoo! cuckoo!"

—Robert Buchanan.

[Written for the UNITED STATES MILLER.]

Tables of Velocities, Rotations, Etc.

It often happens that the practical man requires to make calculations to determine the lineal velocity of belts or of band saws in feet per minute, on pulleys of given diameters, with various rotation speeds; or to determine the number of rotations per minute desired to obtain the desired rim speed or belt speed, with pulleys or saws of different diameters. To help in this matter, we have had prepared tables enabling such details to be run through more quickly and with less likelihood of being wrong than if they were hastily done with a pencil or a piece of chalk, upon the shop door or mill floor.

We will suppose that it is desired to find the velocity of a belt, in order to calculate roughly its horse power. If it run upon a 58 inch pulley at 350 turns per minute, refer once to the first table will show that its speed (not allowing for slipping) is 5314 feet per minute. This table is especially convenient because the pulley diameters are expressed in inches and the belt speeds in feet. We give also the factors which will enable anyone to make these calculations more rapidly than where the circumference is determined first in inches and then reduced to feet.

A further application of this table will be in the case of a band saw, where the velocity of the blade must be in a certain proportion to the rate of feed of the stuff. If, for example, a band-sawing machine have pulleys 60 inches in diameter (and the larger they are the better), and the feed must be one one-hundredth the blade velocity, the table will show that the blade has a velocity of 4712; and in this case the feed should be 47 feet per minute.

The rough rule for horse power of single leather belts is that 1000 feet of belt per minute gives one horse power for every inch of belt width; thus a 6 inch belt traveling 2000 feet would have 12 horse power.

If, now, a 52 inch pulley runs 400 revolutions, a 10 inch belt upon this pulley would transmit 54.45 horse power; because there would be, according to the table, 5445 feet of belt passing per minute; this would give 5.445 horse power for every inch wide the belt was and as the belt was 10 inches wide its horse

power would be 54.45. It is proper to remark in this connection that this rough rule of thumb of the horse power of belts is very rough and that there is a very wide margin owing to the capacity of the belt for transmission depending so largely upon the tension, the arc of contact, the condition of the belt and of the pulley, the diameter of the pulley, etc.

The second table is a proper companion to the first. It is intended to show how many revolutions per minute will be requisite to give a required number of feet per minute of rim speed, with pulleys or saws of various diameters.

If, for example, it be desired to run a circular saw 12,000 feet per minute, and the saw be 72 inches in diameter, the table shows that the saw must run about 637 turns. If this saw be worn down by filing, to 66 inches diameter and the same rim speed be desired then it must have about 695 turns.

By the aid of the two tables there may be solved without any trouble many of the questions in transmission by belts or by wire ropes, which come up so often to the practical man. Thus, in considering the advisability of running a wire rope 9,000 feet or 13,000 feet to carry a certain horse power; in the first case there would be required a 60 inch pulley at about 573 turns per minute, and in the second the same pulley at 752 rotations. If, now, these pulleys were considered to be too small for the high speed, the same rope speed would be got, with much less liability to break the rope by sudden turns by employing a 72 inch pulley 477 turns for 9,000 feet or 690 turns for 13,000 feet. Or if it were desired to take off power from a wire rope running 670 turns upon 72 inch pulleys, and to obtain a speed of 800 turns, the last column in the table will show the figure 801 opposite 62, and this would show that a 62 inch pulley would give 801 turns with 13,000 feet rim speed.

These tables were calculated by one of our contributors to meet his own demands for such aids, and as they have proved useful to him, we present them to our readers.

Rule. To find lineal velocity of a band saw or a belt in feet per minute, multiply diameter in inches by 3.1416 and divide the product by 12, and by the number of revolutions per minute.

TABLE OF LINEAL VELOCITY OF BELTS OR OF BAND-SAWS, (GIVEN IN FEET PER MINUTE), ON PULLEYS OF GIVEN DIAMETERS, AT VARIOUS SPEEDS.

Diam pulley in in.	Revolutions Per Minute.						Diam pulley in in.
	300	350	400	450	500	600	
30	2356	2749	3142	3534	3927	4712	30
32	2518	2932	3351	3770	4189	5025	32
34	2679	3115	3560	4005	4451	5341	34
36	2837	3298	3770	4241	4712	5664	36
38	2994	3482	3978	4477	4974	5999	38
40	3141	3665	4189	4712	5235	6233	40
42	3298	3848	4398	4948	5498	6597	42
44	3455	4031	4607	5184	5760	6911	44
46	3612	4215	4817	5419	6021	7226	46
48	3770	4398	5027	5655	6283	7540	48
50	3927	4581	5236	5890	6545	7854	50
52	4081	4765	5445	6126	6807	8168	52
54	4241	4948	5655	6362	7069	8482	54
56	4398	5131	5864	6591	7330	8796	56
58	4555	5314	6074	6833	7592	9110	58
60	4712	5497	6283	7069	7854	9424	60

Rule. To find the number of revolutions per minute of circular saws, pulleys or wheels of various diameters corresponding to a given rim speed: Multiply the diameter in inches by 3.1416 and divide the product into twelve times the rim speed in feet; or divide the diameter in inches into 382 times the rim speed.

Less accurately; divide 11 times the diameter in inches into 42 times the rim speed in feet.

TABLE OF REVOLUTIONS PER MINUTE FOR VARIOUS RIM SPEEDS.

Diam pulley in in.	Rim Speed, Feet Per Minute.				
	9000	10,000	11,000	12,000	13,000
8	4297.12	4774.62	5252.12	5729.62	6207.12
10	3437.70	3818.70	4201.80	4586.90	4968.00
12	2864.75	3182.00	3501.33	3821.66	4138.00
14	2455.50	2728.50	3001.14	3275.71	3546.85
16	2148.56	2387.31	2626.44	2896.25	3103.50
18	1905.94	2122.05	2334.22	2547.77	2758.66
20	1718.85	1909.85	2100.80	2293.84	2482.80
22	1562.59	1736.22	1909.81	2084.54	2257.09
24	1432.37	1591.54	1750.66	1910.08	2069.00
26	1322.19	1469.11	1616.00	1763.84	1909.84
28	1227.75	1364.17	1500.57	1637.85	1773.09
30	1145.90	1273.23	1400.53	1528.66	1655.20
32	1074.28	1193.65	1313.00	1433.12	1551.75
34	1011.08	1123.44	1235.76	1348.82	1460.47
36	954.91	1061.02	1167.11	1273.88	1379.38
38	904.65	1005.18	1105.68	1206.84	1306.73
40	859.42	954.92	1050.40	1146.50	1241.40
42	818.50	909.45	1000.38	1091.90	1182.28
44	781.22	868.11	954.90	1042.27	1128.54
46	747.32	830.36	913.99	996.95	1079.47
48	716.19	795.77	876.88	955.41	1034.50
50	687.54	763.94	840.82	917.20	993.12
52	661.09	734.55	808.00	881.92	954.92
54	636.61	707.35	778.07	849.25	919.55
56	613.87	682.68	750.28	818.92	886.71
58	592.70	658.56	724.41	790.68	856.13
60	572.86	636.61	700.25	764.43	827.60
62	554.46	616.08	677.67	739.67	800.90
64	537.14	596.51	656.50	716.56	775.87
66	520.86	578.74	636.60	694.84	752.36
68	505.54	561.72	617.88	674.41	730.28
70	491.10	545.67	600.22	655.14	709.37
72	477.45	530.51	583.55	636.94	689.66
74	464.55	516.17	567.78	619.72	671.02

JONATHAN MILLS has left the firm of Chisholm Brothers, and has accepted a position as general manager with the Phoenix Iron Works, at Terre Haute, Ind.

Centrifugal Bolting Reels.

The centrifugal reel was originally introduced by Naegel & Kaemp, of Hamburg, Germany, who are very important engineers and employ a large staff. The machine was found to be exceedingly useful, having a very great capacity, while occupying only little space. The diameter of the original machine was much smaller than that of the machines which have recently become so popular in England; but the quality of the work performed by Naegel & Kaemp's centrifugal has never been questioned. Very large numbers of the machines were introduced in the mills of Germany and Austria-Hungary, but it was a long time before English millers could be induced to adopt the reels.

When once the reputation of Naegel & Kaemp's centrifugal had been established, numerous modifications were introduced by other inventors, such as Martin, Fiestel, &c., and at present almost every Continental mill-furnisher manufactures a special machine of his own. Naegel & Kaemp's centrifugal has an outer drum consisting of a sectional framework of wood, on the inside of which the silk gauze is fastened. The beaters are of iron, curved in such a manner as to throw the meal in a regular stream against the silk, while the pitch of the beater has been calculated by careful experiment so as to carry forward the material being operated upon as fast as necessary. In roller mills the centrifugal was found to be especially useful, as the beaters assisted in separating any flaky material.

H. J. Sanderson, of Manchester, (now Sanderson & Gillespie, of London), worked hard for a long time before he could induce many English millers to adopt it to any great extent. Samuel Fitton, of Macclesfield, was one of the first to accept the innovation.

Hoerde & Co., of Vienna, put Martin's Centrifugal upon the British market and the machine met with some success.

But the introduction of Sutcliffe's Centrifugal, invented by Abraham Crabtree, foreman of Sutcliffe & Sons' mill, caused quite a stir. This machine has a drum of very much larger diameter than the original machine, and the silk covering is put on the outside of the drum. A revolving brush placed longitudinally beneath the reel, keeps the meshes of the silk free and open, greatly increasing its capacity. A very large number of machines of this make were soon in operation. A general acceptance of the centrifugal followed; many of the machines differing little from those mentioned.

Bedford, of Leeds, added rotating vanes at the head end of his reel to assist in detaching the caked material from chilled iron rolls; Ellison, of Leeds, serrated the edges of the beater blades at the feed end in his machine for the same purpose, while Carter added a brush detacher. Various minor differences exist in the several machines in the manner of driving, etc.

Now that enterprising American firms have been manufacturing some of the best machines, millers in the United States will have an opportunity of judging of their merits, but under any circumstances it is safe to say that the centrifugal is sure to find favor for grading middlings, handling the breaks from rollers, and dressing roller flour.—*Millers' Journal*.

Puts, Calls, and Straddles.

"I believe you have gambled in Wallstreet, Mr. Breezy," said Mrs. Breezy, helping her lord and master to a cup of coffee.

"I have speculated a little in stocks, dear, if that's what you mean," said Mr. Breezy, unfolding his napkin.

"Same thing," said Mrs. Breezy; "you can call it speculation; I know it's gambling. How do they do it anyway? I read about puts and calls and straddles, and buy a three's but I can never make any head or tail out of it. I suppose it's some horrid slang you men have invented."

"Well, no, dear," said Mr. Breezy, helping his better two-thirds to a chop. "It isn't exactly slang. You see, for instance, I buy a hundred short—"

"You do what?" cried Mrs. Breezy.

"I buy a hundred short," repeated Mr. Breezy.

"Well, what in the name of common sense do you mean by that?" asked Mrs. Breezy.

"Why don't you talk United States—I mean English? You buy a hundred short, and what has short got to do with it?"

"If you will give me time I will explain, my dear," said Mr. Breezy. "You see if a man is long on stock he is—"

"Long on stock?" said Mrs. Breezy. "Now

what are you getting to? First you are short and then you are long. What does a man want to get long on stock for, anyway?"

"My dear, if you will allow me—"

"To be sure. Go ahead. Tell me something about Wall street, but don't talk nonsense," said Mrs. Breezy.

"Well, my dear, we'll suppose that I have a 'put' on Wabash, and—"

"There you go again," said Mrs. Breezy. "Will you or will you not talk in a language I can understand? What is Wabash, anyway? I suppose it is another slang term?"

"No, that's a stock," said Mr. Breezy; "you see, dear, if I have a 'call' on Wabash or Northwestern—"

"If you call on the Northwest?" cried Mrs. Breezy; "are you really going mad, Mr. Breezy? Well, I might expect as much from the life you have led recently. What with clubs and politics, you are going headlong to some terrible fate."

"My dear, it will be impossible for me to explain anything unless you will give me five minutes to do it in," said Mr. Breezy, with unusual warmth. "Now, at the beginning of this week Omaha preferred started at 106½ and 105—"

"Omaha preferred?" asked Mrs. Breezy. "Why is it preferred? Who preferred it? What has Omaha got to do with New York and Wall street, anyway, and what do you mean by 106½?"

"I shall have to give it up," said Mr. Breezy in a despairing voice.

"No, Mr. Breezy. I have started out to know something about Wall street, and I won't allow you to get out of it in that way," said Mrs. Breezy, setting herself more firmly in her chair. "Now, Mr. Breezy, you will please drop slang and come to something I can understand. For instance, what is a bull bear?"

"Ho, ha, ha-oh!" laughed Mr. Breezy.

"What do you mean by laughing at me, Mr. Breezy? I'm sure I—"

"Ho, ho, ha-oh!" and Mr. Breezy fairly doubled up with laughter.

"Mr. Breezy, you haven't the manners of a savage," cried Mrs. Breezy, pushing back her hair, "and I don't believe you know any more about Wall street than a two weeks' old baby," and Mrs. Breezy made Hazael time to the kitchen to take revenge upon the cook.—*Brooklyn Eagle*.

Be Careful How You Talk.

Many years ago, in Milwaukee, there was a large grocery house, where there was a salesman employed (now a wholesale grocer in this city) who adopted and used all the slang phrases as they came along.

One day a man went into the store, and taking out a long list of groceries needed, asked of the salesman, "have you got any good sugar?" Salesman said: "We haven't got anything else;" (the slang phrase then in vogue.) The man bought and paid for five barrels of sugar, and went out saying he would be in again and take them.

In about an hour he drove up, and meeting the salesman, who noticed several chests of tea, etc., on his wagon, was asked, "Why didn't you let me sell you, your tea?"

"Why," said the man, "when I asked you if you'd got good sugar, you said you 'hadn't anything else,' and I supposed that sugar was all you kept."

Slang phrases have not been in favor with that grocer since that time.

This reminds us of another grocer, at Fox Lake, whose "front name" was Peter. While standing at his door, he was accosted by a farmer, "Have you got any salt, Peter?"

"No," said the grocer.

Along towards night the granger was seen driving by with several barrels of salt on his wagon, when the grocer asked, "Why didn't you let me sell you the salt?"

"I asked you if you had any," said the granger, "and you said no, and I drove over to Beaver Dam to get it."

"Confound it," said the grocer, "I thought you asked me if I had any saltpetre."

A Chattanooga letter says: Already there is invested here over \$3,000,000 in manufacturing enterprises, over \$2,000,000 of which is in iron interests. One company alone, the Roane Iron Company, has a paid up capital of \$1,000,000, and I understand money is every day seeking investment here. To give an idea how much values have increased here, in 1871 there was \$8,600,000 worth of property and in 1881 it swelled to \$6,500,000, or about 100 per cent. In 1882 the assessed value will be over \$7,000,000. In the manufacturing there are employed over 3,000 hands, the Roane Iron Company paying one-fourth of these, or 800 in all.

A Legal Decision.

Millers who were engaged in manufacturing flour, mixing for the purpose red and white wheat, and who had wheat in store for the purpose, and were receiving wheat in store for others and issuing warehouse receipts therefor, applied to a bank for a loan, and were allowed the loan on condition of their giving a warehouse receipt for 18,000 bushels No. 1 white winter wheat and No. 2 red, the same or an equivalent in flour to be held for the bank as security for the payment of a note of \$20,000. The millers subsequently failed in business, having put a fraudulent mortgagee in possession and the bank replevied from him such wheat as was found in store—3,000 bushels No. 1 white winter—and took flour manufactured from the wheat in store for the remainder. Upon these facts the Supreme Court of Michigan held: 1. That a warehouse-man could make a valid pledge of grain in store by issuing a receipt therefor, without the ceremony of making actual delivery of the grain. 2. That the pledge in this case was not invalid because of its specifying two kinds of wheat, but that the pledge was entitled to take an equal amount of each kind. 3. That, not finding the requisite amount of wheat, the bank might legally take an equivalent from the flour, as they did.

Items of Interest.

Washington County, Pennsylvania, is said to be largest wool-growing county in the Union, and to produce annually 2,500,000 to 3,000,000 pounds of wool, worth in cash \$1,000,000.

THE Northern Pacific is now built through Oregon into Idaho, and nearly 300 miles west of Bismarck, leaving a gap of 600 miles to complete the road. The company have used up \$20,000,000, and called another \$1,000,000 from their subscribers.

STRIKES are not, as a rule, successful. The statistics reported by the Bureau of Labor of Massachusetts, show that, out of 159 strikes, only 18 were entirely successful; 109 were unsuccessful; 16 were compromised and 6 were declared to be partly successful.

COLUMBUS, Ga., has now in operation seven cotton mills, containing 2,000 looms and 60,000 spindles, employing 3,000 hands, consuming 20,000 bales of cotton, with a capital of \$1,983,500, annually producing \$2,181,850. As a consequence, Columbus is growing rapidly and is one of the most thrifty inland cities in the South.

THE New Zealanders are seriously exorcised because of the myriads of rabbits which are eating up colony farm products and threaten an entire devastation. Cats are found to be their most effective destroyers and are trained and used by the professional rabbiters, but the supply is limited, there being but few available ones.

THE enlargement of the Welland Canal, commenced in 1872, is very nearly completed. It is a work of great magnitude and vast usefulness, and when finished will have cost thirteen million dollars. All that yet remains is the finishing of the aqueduct which is being constructed over the Chippewa, at Welland, at a cost of one million. Prior to the enlargement, the capacity of the canal was for vessels not exceeding five hundred tons; it will now have a capacity for those of one thousand tons. The twenty-six locks connecting Lakes Ontario and Erie are each two hundred and seventy-five feet long and forty-five feet wide with lifts of fourteen feet.

EDWARD WILLIS, a Sudbury (Mass.) miller, has at the present time a seven-toed cat, which is rearing two seven-toed kittens of her own, three red or "ferret" squirrels, and a raccoon. They are all together, and the cat regularly nurses the entire lot, manifesting just as much affection and anxiety the welfare of the squirrels and the raccoon as she does for her own offspring. The squirrels, which are about five weeks old, regularly leave the cat and go to the edge of the woodland to frolic, and as regularly return to the house of Mr. Willis to go to sleep with the cat. The family is a happy one and is perfectly at home with strangers who call to see it.

In a recent lecture in Berlin, Dr. Werner Siemens expressed a wish that in all technical schools in Germany, chairs of "Electrotechnik" might be instituted for instruction of youth in electricity and its applications. This has now been realized in the Technical High School at Stuttgart. One term will be devoted to theoretical principles, the most important measuring instruments and meas-

urement, electrolysis, illumination and transmission of force, and a second to telegraphy (including railway signaling and telephone matters). Practical exercises will follow up the lectures. In 1876 a professor of telegraphy was appointed in the Dresden Polytechnikum.

SLY OLD HORSE.—Anent "The Blues," I have heard a charming story, illustrative of the wonderful intelligence of some horses. One evening the officer on guard hearing a noise in the stables, concluded that a horse must have got loose. He therefore went with a corporal of the guard, and, looking through a keyhole, saw an old troop-horse lifting up the lid of the corn bin and munching away at the oats. The officer rattled the door by mistake. The old charger instantly cocked his ears, stole back to his stall, artfully slipped his head back into his halter, and awaited events as if nothing had happened. Seeing this, the officer and corporal, pretending to be deceived, after looking around the stables, went out again. So soon, however, as the horse heard the lock turned upon them, he slipped his halter and attacked the corn bin again. At this the crafty old warrior was firmly secured. —London Figaro.

Things Worth Knowing.

GRAPHITE paint has lately been put to a new use. It has been applied to iron to protect it against the corrosive action of the sulphurous acid fumes which are so destructive in metallurgical works. The result of the experiment was so successful that the corrugated iron roofs of the Colorado Smelting Works in Denver have been coated with it.

A WEALTHY land owner in the Tyrol has made an application of the microphone to the detection of subterranean springs. He fixed the microphones at the spots where he supposed water might exist, each being connected with its telephone and battery. Then at night, he puts his ear to each of the instruments and listened for the murmuring of the waters—and in several cases heard it.

BLACK walnut can now be manufactured very cheaply. One part of walnut peel extract is mixed with six parts of water, and the wood is coated with the solution. When the material is about half dry a solution of bi-chromate of potash with water is rubbed on it, and then your walnut is ready. Furniture dealers have been known to make excellent walnut from very poor pine, but the difference was slightly perceptible; however, this method is said to defy detection.

A MODE OF HULLING WHEAT.—A Swiss process of removing the bran of wheat without loss of nutritive matter, consists in moistening the wheat before grinding with a solution of caustic soda in water. The solution is prepared by dissolving six and two-thirds pounds of caustic soda in one hundred and thirty-eight pounds of water. The steeping may be from fifteen to twenty minutes, and may be done in vats similar to those used by brewers. The caustic solution swells and loosens the hull proper, so that it may be removed by the slightest friction, leaving the gluten with the body of the grain.

IMPERMEABLE LEATHER.—The following process for rendering leather impermeable, says the Manchester Mechanical World, is given by Mr. Jacques, of Hemming, near Sarrebourg. It depends on the property of soap solution being decomposed by acids, and being transformed into fatty acids which are insoluble in water. The leather is dipped before using in a solution containing from 2½ to 5 per cent. more soap dissolved in water. The tannic acid contained in the leather, more or less, according to the method of tanning, transforms the soap solution into insoluble fatty acids, and renders the leather perfectly impermeable.

MANY work-shops contain a dirty wash-leather, which is thrown aside and wasted for the want of knowing how to clean it. Make a solution of weak soda and warm water; rub plenty of soap into the leather, and allow it to remain in soak for two hours; then rub it well until it is quite clean. Afterwards rinse it well in a weak solution composed of warm water, soda and yellow soap. It must not be rinsed in water only, for then it would be so hard when dry as to be unfit for use. It is the small quantity of soap left in the leather that allows the finer particles of the leather to separate and become soft like silk. After rinsing, wring it well in a rough towel and dry quickly; then pull it about and brush it well, and it will become softer and better than most new leathers. In using a rough leather to touch up highly-polished surfaces, it is frequently observed to scratch the work; this is

caused by particles of dust, and even hard rouge, that are left in the leather, and if removed by a clear rouge brush it will then give the brightest and best finish, which all good workmen like to see on their work.

TO EVICT RATS.—A writer in the Scientific American says: "We clean our premises of the detestable vermin, rats, by making white-wash yellow with copperas and covering the stone and rafters with it. In every crevice in which a rat may go we put the crystals of the copperas and scatter in the corner of the floor. The result was a perfect stampede of rats and mice. Since that time not a footfall of either rats or mice has been heard around the house. Every spring a coat of yellow wash is given the cellar as a purifier, as a rat exterminator, and no typhoid, dysentery, or fever attacks the family. Many persons deliberately attract all the rats in the neighborhood by leaving the fruits and vegetables uncovered in the cellar, and sometimes even the soap is left open for their regalement. Cover up everything eatable in the cellar and in the pantry, and you will soon starve them out. These precautions, joined to the services of a good cat, will prove as good a rat exterminator as the chemist can provide. We never allow rats to be poisoned in our dwelling. They are so apt to die between the walls and produce annoyance."

FIREPROOF PAINT.—Some experiments, says the London (Eng.) Timber Trades Journal, were recently shown at the offices of the United Asbestos Co., in the presence of the Lord Chamberlain and others. The Asbestos was prepared as a paint, with which wood, canvas, and gauze net were coated, and various specimens were submitted to the action of fire and strong flame, but in no case was ignition effected. Among other experiments, a piece of light pine wood, about six inches long by four inches square, painted with five coats, was placed for upwards of half an hour in an ordinary grate fire; but although the wood within was reduced to charcoal there was no blaze whatever emitted during the charring. In the yard of the premises a small model theatre, built of wood, was sprinkled with turpentine and set light to. Every portion ignited, and the whole consumed. A similar model, with the scenes and the wood framing all painted with Asbestos, was drenched with turpentine and set fire to, but the thin scenes were only partially charred at the lower ends with the turpentine flames, while the timbering was not even ignited. Similar experiments were made with two models of large size and with similar results. The process is now being applied to the whole of the woodwork on the great stage of the Crystal Palace.

CONSUMPTION OF BOXES IN CALIFORNIA.—It looks, says the Reno Gazette, as if the consumption of boxes on the Pacific coast would continue to increase and the manufacture of them become one of the greatest industries in the country. There is already a vast amount of packing going on, and it must increase rapidly for many years, for the resources of the coast are not one-tenth part developed. The whole East is open to the California producer of grapes, apples, pears and small fruits, while the whole world is drawing on her for salmon, canned goods, borax and other staples. Nevada, Utah, Colorado, Wyoming, Arizona, New Mexico and Texas send for greens and vegetables every day in the year nearly, and they all have to be boxed. All this time great vineyards are being planted to grapes, the foothills are being cleared and orchards set out, the rivers are being stocked with salmon and trout, borax beds are being opened up in Nevada, soda is being shipped to San Francisco by the car-load, to be refined and canned, the sugar trade is growing, manufactures are increasing; and they are all shipped in wood. The outlook is a grand one, and it should stimulate the manufacturers to make preparations for working cheaply and to advantage. The present way of turning out boxes is very extravagant.

Foreign Items.

DURING the year 1881 there were granted, in Germany, 4,399 patents.

AN English and Canadian syndicate, of which the Duke of Manchester is the head, has purchased of the Canada Pacific Railroad 5,000,000 acres of land of sections running from Brandon to the eastern boundary of British Columbia, with an interest in all the town sites laid out by the railway company. The price is \$2.70 per acre. The scheme will be called the Canadian Northwest Land Company; capital, \$15,000,000.

"BEST IN THE WORLD."

GARDEN CITY

WHEAT BRUSH!



Gathmann's patent "inclined bristles" prevents all clogging when the brushes are run close together. This is the

ONLY DOUBLE BRUSH

Which can be set up close so that it will

Thoroughly Brush Wheat.

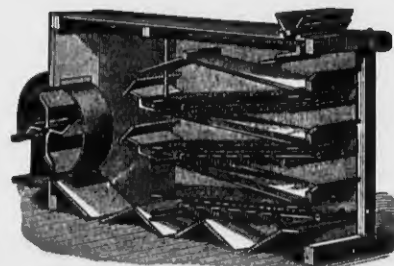
Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

Prices Reduced!

Improved Garden City

Middlings Purifier!



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Send for our new circular.

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

Bolting Cloth!

Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company,

CHICAGO, ILL.

[Mention this paper when you write us.]

COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.

GENERAL MILL FURNISHERS

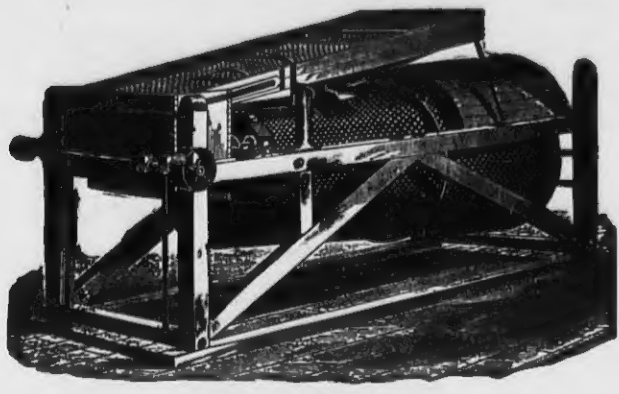
AND MANUFACTURERS OF

IMPROVED COCKLE SEPARATORS

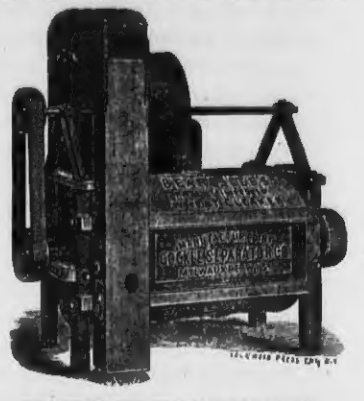
(Kurth's Patent.) Also built in combination with

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.



PLAIN COCKLE MACHINE.



BEARDSLEE'S WHEAT CLEANER.

Perforated Zinc at Bottom Figures.

Send for Illustrated Catalogue.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.
Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We have tested ours thoroughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

BROWN & WINFREY.

Perryville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.
Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of.

Yours respectfully,

B. O. CARPENTER.

Hixton, Jackson Co., Wis., Dec. 30, '81
Cockle Separator Mfg. Co., Milwaukee.

Gents:—In answer to your inquiry of the 28th inst., I would say that the combined machine I bought of you last summer, works to my entire satisfaction. Respectfully yours,

W. T. PRICE,

per D. G. THOMAS.

P. S.—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain
Yours, etc. D. G. THOMAS.

Minneapolis, Minn. Aug. 22, 1881.
Cockle Separator Mfg. Co.:

We have been using two of Beardslee's wheat cleaners, a scourer and finisher, for nearly two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using any other cleaners, and consider our wheat as well cleaned as any in Minneapolis.

Yours truly,

CAHILL, FLETCHER & CO.

La Crosse, Wis., July 30, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

time with very satisfactory results. cannot see that it breaks the wheat or requires an unusual amount of power to run it.

Yours truly,

WILLIAM LISTMAN.

Milwaukee, Wis., Aug. 23, 1881.

Cockle Separator Mfg. Co.

Gentlemen:—The Beardslee's Grain Cleaners which we have purchased from you for our New Era and Milwaukee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation.
Yours truly,
NEW ERA MILLING CO.

Pott's Patent Automatic Feeder!

The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

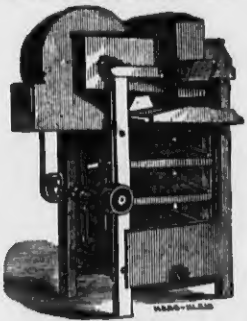
HOWES, BABCOCK & EWELL,

Established 1856.

Silver Creek, Chautauqua County, New York, U. S. A.

Established 1856.

MANUFACTURERS OF THE WORLD-RENOVED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED



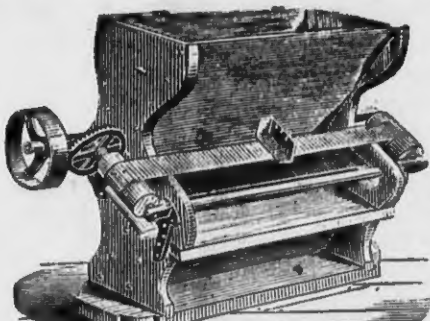
The Eureka Separator

occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from 100 to 1,000 bushels per hour.



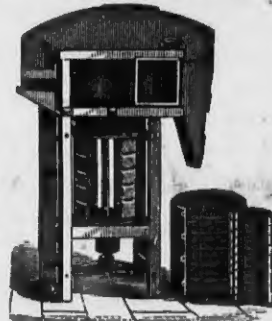
The Eureka Smut and Separating Machine.

A combined Smut and Separating Machine, having thorough ventilation. Over 14,000 of these Machines are now in use.



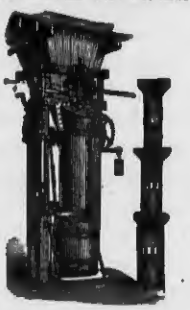
Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of grain, requiring no attention from the miller. 5 sizes.



Eureka Brush Finishing Machine

Recognized as the leading one of this class of machines. Universally recommended for finishing the process of cleaning.



Silver Creek Flour Packer.

Will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-saving patent creveling steel coil spring regulating the packing to perfection.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS.

Office and Warehouse in England, 16 MARK LANE, LONDON, E. C.

FULL STOCK ALWAYS ON HAND, MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.

Gen. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

—ON—

Mill Building.

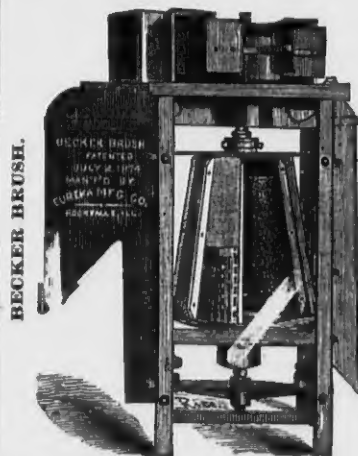
The Latest, Best and Only Exclusively Flour Mill Work in Print.

Every Miller, Millwright and Millwright's Apprentice should have a copy.

THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4 00. Address,

UNITED STATES MILLER,

Milwaukee, Wis.



BECKER BRUSH.

EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

—AND—

Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MAN'G CO., ROCK FALLS, ILL., U. S. A.

[Mention this paper when you write.]

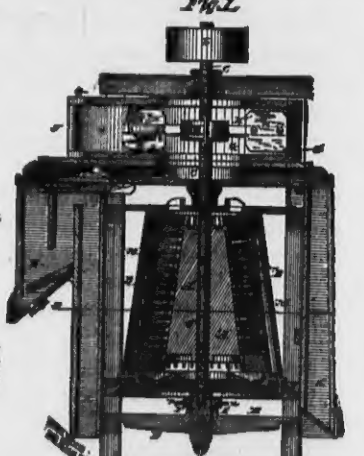


Fig 2

HARRIS-CORLISS ENGINE.

—BUILT BY—

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with four stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines; "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine.

The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside parties being licensed.

WM. A. HARRIS, Proprietor.

[Mention this paper when you write us.]

A NEW PROCESS ROLLER MILL! FOR SALE!

In the City of Milwaukee, known as the "City Mills." Capacity, 250 to 300 barrels per day. Has an established City and Shipping Trade. Mill now running.

For further particulars, address,

ESTATE OF WM. C. DURANT,

"CITY MILLS,"

[Mention this Paper when you write.]

MILWAUKEE, WIS.

STEEL CASTINGS

Works, CHESTER, PA.
[Mention this paper when you write us.]

FROM 1-4 to 10,000 LBS. WEIGHT.

True to pattern, sound and solid, of unequalled strength, toughness and durability.

An invaluable substitute for forgings or cast iron requiring threefold strength.

Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Locomotives, etc.

15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running prove its superiority over all other steel castings.

CRANK SHAFTS, CROSS-HEADS and GEARING, specialties. Circulars and price list free. Address,

CHESTER STEEL CASTINGS CO.,

407 LIBERTY ST., PHILADELPHIA, U. S. A.

NEWS.

Geo. H. Corliss, of Providence, R. I., has recently furnished pumping engines for that city.

BURNED.—B. E. Smith's mill, at Pott's Grove, Pa. Loss, \$14,000.

BURNED.—Henry Rodée's mill, at Ogdensburg, N. Y. Loss, \$65,000. Insurance, \$43,000.

SCOTT, PENROSE & Co., have dissolved partnership. D. Scott continues the business.

FREDERICK H. PERRY, of Whitney's Point, is dead.

KLUMER & VOGES, of Evansville, Ind., dissolved; Fred. Voges continues.

Mrs. J. A. Ellis, of Grafton, Neb., has sold out her milling business to Welch & Price.

The mill of Messrs. Hole & Fanger, at Celina, O., burned out. No insurance.

CRAIK & KROLL, Hawley, Minn., dissolved; Kroll continues.

HARVEY & Son's mill at Marion, Ind., which our readers will remember as being recently destroyed by fire is about to be rebuilt. The machinery is to be furnished by the Nordyke & Marmon Co., of Indianapolis, Ind.

MESSRS. FISHER BROS' mill, at Spencer, Ind., burnt out; loss \$5000. Insured.

TENNESSEE winter wheat has already arrived in Milwaukee and is being ground into flour.

A LARGE roller mill is to be erected at Abilene, Kan. It will have a capacity of about 200 barrels per day.

THE KELLER PURIFIER Co., of Lima, O., will hereafter be known as the LIMA MILL FURNISHING Co.

THE firms owning the "Union" and "Sparta" flour mills, at Sparta, Ill., have consolidated under the name of Gordon, Barker & Co.

THE Keller Purifier Co., of Lima O., will hereafter be known as The Lima Mill Furnishing Co.

PELEG HOWLAND of the milling firm of P. & F. A. Howland, of Lambton Mills, Ontario, Canada, is dead.

E. A. TOWNLEY & Co., Monticello, Ill., have dissolved and are succeeded by S. H. Hubbell & Co.

MESSRS. COX, BRUNER & Co., of Peoria, Ill., have disposed of their milling interests to J. W. Donmayer & Co.

THE milling firm of Smith & Jovey, of Hobart, Ind., have dissolved and are succeeded by Jovey & Ballentine.

THE firm of Barrett & Oglesby, of Dalton, Ga., is dissolved. The business will be carried on by Barrett, Denton & Lynn.

THE Home City Mills, at Toledo, O., owned by Vogel & Son, were entirely destroyed by fire June 23. Loss, \$37,500. Insurance, \$22,600.

THE Star Mills, owned by Messrs. Wells Bros. & Perkins, at Coffeyville, Kan., was burned June 8. Loss, \$6,000. Insurance, \$1,200.

THAT jolly miller, Sam. Robinson, of Sandersville, Ga., recently caught with his hook and line, in his mill pond, a cat-fish weighing forty-five pounds.

DON'T throw away your old flour barrels. They are useful. It has been found that an ordinary flour barrel will hold 678,900 silver dollars.

MESSRS. WALSH, DE ROO & Co., have commenced the erection of a 175 barrel roller mill at Holland, Mich. It is furnished with a Reynolds-Corliss engine and the Gray Roller Mills.

L. R. BROWN & Co., formerly of Stevensville, Mich., have found a desirable location at Spring Station, Ind., and will transfer their business to the latter place. The machinery for the new flouring mill is of the Nordyke & Marmon Co's make, at Indianapolis, Ind.

FOR SALE.

A Four-run Mill at Troy, Doniphan Co., Kansas, with Rolls and Purifier, plenty of steam power, and everything in good order for making first-class flour. For particulars address

D. M. PARKER, Troy, Doniphan Co., Kan.

A FACT.

I sell my flour in competition with the best St. Louis Mills. I get the same price. My Mill has made a net profit, since the harvest of 1881, of nearly 50 per cent over the cost of the Mill.

AN OPINION.

I could not afford to do without the Slater Reels if I had to pay twenty-five dollars a month for the privilege of using each Reel in the mill. This is the statement of Mr. J. W. Buky, of Nicholasville, Ky.

C. B. SLATER & CO

SLATER'S REELS.

Mt. Sterling, Ill., May 25, 1882

C. B. SLATER & CO.

GENTS,—Since putting in your Chest my business has increased one-third. A Car of Flour shipped to St. Louis last week graded next to the highest.

Respectfully yours,

R. H. ROSS.

Mr. Ross' Flour being a straight grade puts it away ahead of lots of Patents and Roller Mill Flour. No other change was made in the Mill.

Correspondence solicited.

Respectfully yours,

C. B. SLATER & CO.

Milwaukee Steam Engine Works.

Improved Corliss Engine

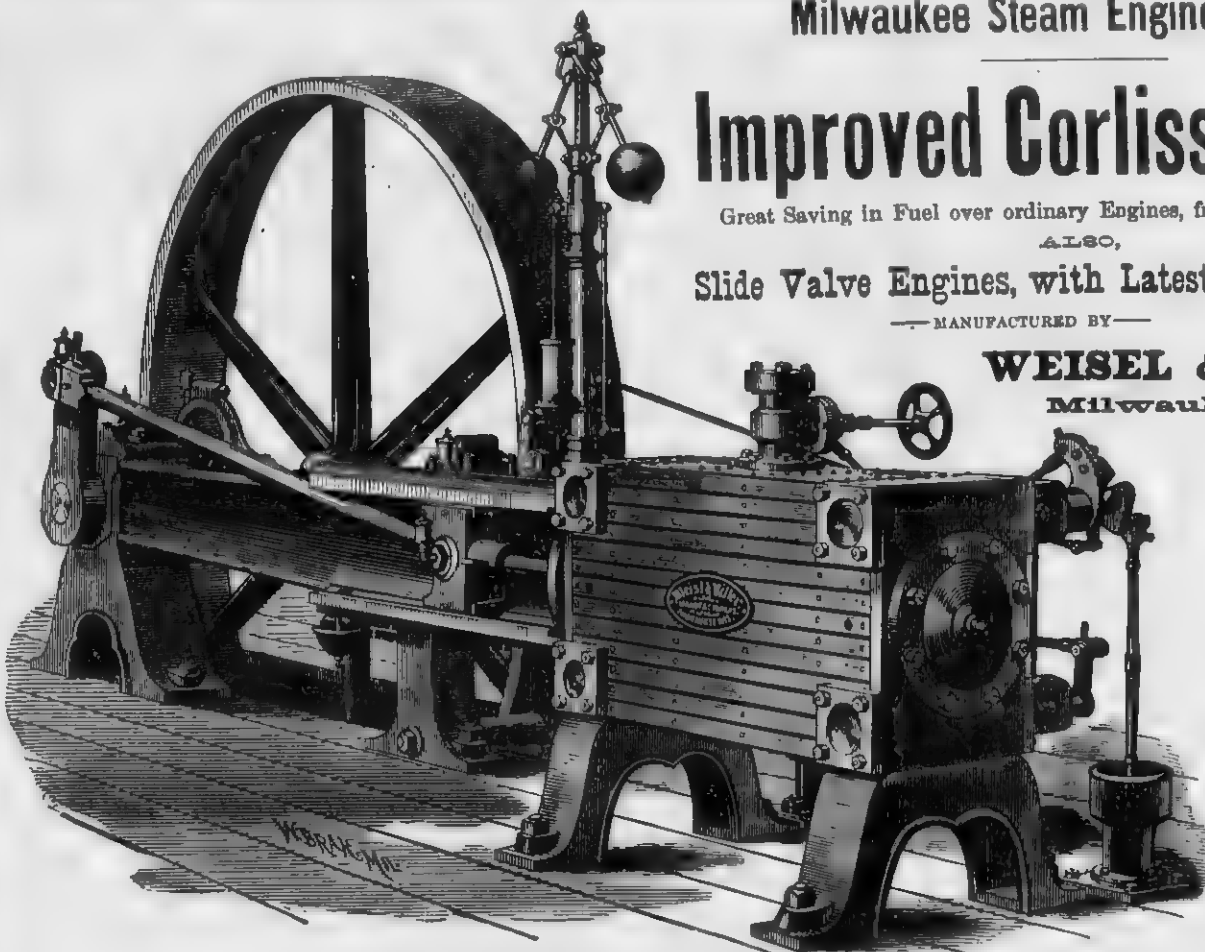
Great Saving in Fuel over ordinary Engines, from 40 to 50 per cent.

ALSO,

Slide Valve Engines, with Latest Improvements.

—MANUFACTURED BY—

WEISEL & VILTER,
Milwaukee, Wis.



This Cut was taken from a Corliss, 18 inch Diameter, 36 inch Stroke.

STEAM AND AIR PUMPS,

PULLEYS, SHAFTINGS, HAWERS, GEARINGS.

WRITE FOR PRICES.

MILWAUKEE, WIS.

BOLTING CLOTH!

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address,

CASE MFG. CO.,

Office & Factory; Columbus, Ohio.
Fifth St., North of Waughten.

BIRGE & SMITH,
PRACTICAL
MILLWRIGHTS.

PLANS, SPECIFICATIONS & ESTIMATES

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishings.

Corner of East Water and Knapp Sts.,

MILWAUKEE, WISCONSIN.

(Mention this paper when you write us)

BOLTING CLOTH Important Letter to Millers.



Let it not be forgotten that we keep a very large stock of the genuine Dufour Bolting Cloth always on hand, and those who order that brand from us will always be sure to get the genuine article. In addition to this we keep constantly on hand a large stock of Dutch Anchor Cloth, which we import direct from the manufacturers, in Switzerland, and is not sold by any other dealers in Bolting Cloths in this country. This we warrant to be equal to, and even superior, to any other brand in the market, except Dufour. We know what we say in this regard. Cloths made up ready for the reel in the best manner possible, by the use of our Patent Attachments, using the best of Ticking and Silk Twist. Please write us for prices, discounts, and samples of cloth and making, before purchasing elsewhere.

Address,

HOWES, BABCOCK & EWELL,

Silver Creek, N. Y.

We wish to call your attention to a few facts in regard to the

ODELL ROLLER MILL.

FIRST. This Mill is driven by an entirely new noiseless belt drive, (using no counter shafts), and being so arranged as to be instantly started and stopped without throwing off the belt. It differs entirely from any other drive, infringes nobody's patent, and is the invention of Mr. U. H. Odell. IT IS COVERED BY BOTTOM PATENTS, AND CAN BE USED ON NO OTHER MACHINE.

SECOND. Our device for spreading the rolls apart is superior to all others, and we were the first manufacturers to connect the feed gates with the roll spreading mechanism. Our patents broadly cover devices for spreading the rolls and simultaneously shutting off the feed.

THIRD. We are aware that some manufacturers, recognizing the great value of these devices, are striving to copy them, and adopt them on their mills, and WE HEREBY WARN MILLERS AT THIS EARLY DAY, THAT ANY MILL WHICH HAS LEVER OR GEAR DEVICES FOR SPREADING THE ROLLS, AND AT THE SAME TIME SHUTTING OFF THE FEED, IS INFRINGING OUR PATENTS. The same is TRUE WITH REGARD TO OUR TIGHTENERS FOR STARTING AND STOPPING THE MILL WITHOUT THROWING OFF THE BELT. NOW WE HAVE THE SOLE RIGHT TO MANUFACTURE AND USE THESE DEVICES, AND WE INTEND TO FULLY PROTECT OURSELVES; AND WE TAKE THIS OPPORTUNITY TO PUT MILLERS ON THEIR GUARD AGAINST BUYING MACHINES WITH THESE ADJUSTMENTS OF ANY BODY, UNLESS THE MACHINES ARE THE ODELL ROLLER MILLS, MANUFACTURED BY US.

We are prepared to fill orders for these Mills promptly, and guarantee them to be of the very best material and workmanship.

Millers buying the Odell Rolls are SECURE FROM ANY INFRINGEMENT. On the front page of this paper is a cut of this Mill, which please examine carefully.

Very Respectfully yours,

STILWELL & BIERCE MFG. CO.,

Dayton, Ohio.

The Case Break Machines.



SINGLE MACHINE.

Capacity, 5 to 60 Bushels per hour.

Milwaukee, Wis., March 29, 1882.

CASE MANUFACTURING CO., Columbus, O.:

Dear Sirs,—They excel our most sanguine expectations. After a trial of about three months we are highly pleased with their work, their capacity, and small amount of power required to drive them. If these Machines work as well on the other breaks as upon the first, they will prove a great acquisition to the list of Improved Milling Machinery.

Very Truly,

S. H. SEAMANS & CO.

(Mr. S. is Secretary of the Millers' National Association.)

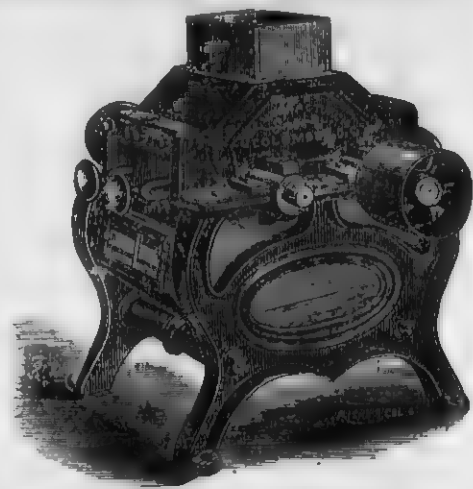
Marietta, Ga., April 1, 1881.

THE CASE MANUFACTURING CO., Columbus, O.:

Dear Sirs,—I find in my travels the "Little Giant" is the best Machine for 1st, 2nd and 3rd break reductions of any Rolls or Disk Machines I saw on the market, and I have determined to adopt them. Please quote me prices, and also on your No. 3 Double Purifier. The Little Giant is ahead of them all, and no mistake.

Yours Truly,

T. H. CHEEK, Supt., Kenesaw Mill Co.



Double Machine—Capacity, 120 Bushels per hour

THE LITTLE GIANT

STEPS TO THE FRONT.

It has been running successfully for more than a year in some of the best Mills, doing better work than the Rolls or any other system. It produces more Middlings, less Break Flour, and runs with less power than any Break Machine in use. We have a number of mills now running on our entire system with splendid results. MANY ROLLER MILLS ARE PUTTING OUR FIRST BREAK AHEAD OF THEIR ROLLS. The "Little Giant" splits almost every grain through the seam, and makes ONLY ONE BARREL OF BREAK FLOUR IN THREE HUNDRED BARRELS.

TO ROLLER MILL MEN WE WOULD SAY:

Write us for particulars and OUR VERY LOW PRICE LIST as compared with Rolls. Below we name a few of the many that are using our Machines:

ROOTS & CO., Cincinnati, Ohio.
KENESAW MILL COMPANY, Marietta, Georgia.
WM. BROWNLEE, Irvington, Illinois.
D. B. SEARS' SONS, Rock Island, Illinois.
GOLDEN AGE MILL CO., San Francisco, California
LOS GATOS MANUFACTURING CO., Los Gatos, California.
TEXAS STAR MILLS, Galveston, Texas.

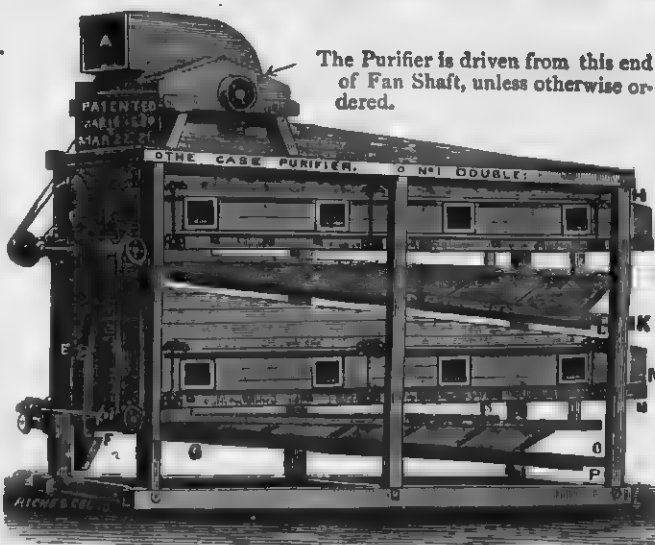
WEAR, LEE & CO., Belton, Texas.
W. B. GORTON, Lima, Ohio.
J. B. HICKS & CO., La Grange, Ohio.
J. B. MILLER & CO., Ashley, Ohio.
S. H. SEAMANS & CO., Milwaukee, Wisconsin.
J. H. LAUDIS, Yerks, Pennsylvania.

We are also manufacturing CORRUGATED ROLLS for the Fourth, Fifth and Sixth Breaks. Our Combined system being superior to anything now in use. We also make a splendid SMOOTH Roll for germ and sizing. All our Rolls have an Automatic Feed, and many other valuable points.

THE CASE MIDDINGS PURIFIER

A—The Fan Spout is reversible—is made to blow toward either end of Purifier.
The Fan can be placed on top or end of Purifier—when on end it increases the length 39 inches, and diminishes the height 23 inches.

B—Air-valve upper Riddle.
C—Cut-off for upper Riddle, sliding one-half the length of Riddle.
D—Air-valve, lower Riddle.
E—Upper Riddle tails off here.
F—Lower Riddle tails off here.
G—Cut-off for lower Riddle, sliding one-half the length of Riddle.



The Purifier is driven from this end of Fan Shaft, unless otherwise ordered.

H—Feed Box for upper Riddle.
I—Bolting Cloth for upper Riddle.
K—Purified Middlings from upper Riddle.
L—Cut-off from upper Riddle.
M—Feed Box for lower Riddle.
N—Bolting Cloth for lower Riddle.
O—Purified Middlings from lower Riddle.
P—Cut-off from lower Riddle.

The upper and lower halves are each a complete machine, and can be run together, or separately, as desired.

STANDS TO-DAY WITHOUT A RIVAL,

Doing more and better work than any other, giving Double the Capacity, costing less, and runs without jar or noise. It is the ONLY DOUBLE PURIFIER, and has many new and valuable points, which we have covered with Patents.

Can fill orders promptly. Address

OFFICE AND FACTORY.

5th Street, North of Naughten.

(Please mention the United States Miller when you write to us.)

CASE MANUFACTURING COMPANY,

COLUMBUS, OHIO.

E. P. Bacon & Co.,

Room 23 Chamber of Commerce,

MILWAUKEE.**L. Everingham & Co.,**

No. 125 LaSalle Street,

CHICAGO.**COMMISSION MERCHANTS!****GRAIN, SEEDS, PROVISIONS, ETC.****Special Attention given to the Purchase and Shipment of Grain for Milling Purposes.**

We have an experienced man in attendance at each elevator constantly, to see to the inspection of grain when loaded into cars for shipment, and the interests of parties ordering through us will be carefully protected in every way.

Orders for Purchase and Sale of Grain for Future Delivery will be Promptly and Carefully Executed.

Mention this paper when you write us.]

A NEW DEPARTURE

We are the Sole and Exclusive Licensees for this Country under the

MORRITZ MARTIN PATENTS

—ON—

CENTRIFUGAL FLOUR DRESSING REELS

And we are now prepared to fill orders for machines with latest improvements, which include

**OUR NEW DOUBLE COVEYORS,
NEW CLOTH FIXING AND STRETCHING DEVICE,
NEW AND SIMPLIFIED MANNER OF DRIVING.**

THE CENTRIFUGAL has more than **FOUR TIMES** the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silt it is passed over. **IT IS SPECIALLY ADAPTED** to handling soft, reground material, full of light impurities, whether from rolls or stone. **IT IS INDISPENSABLE** to a **CLOSE FINISH** in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner. **IT MAKES A CLEAN SEPARATION** on caed and stay meat from smooth ro which no other style of reel can do. **IT IS VASTLY SUPERIOR** to the common reel for dusting middlings. **THEY CAN BE USED TO ADVANTAGE** as a complete system of bolting, to the exclusion of the ordinary reel.

Over one Hundred sold in six weeks.

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDINGS PURIFIER CO., - Jackson, Michigan.

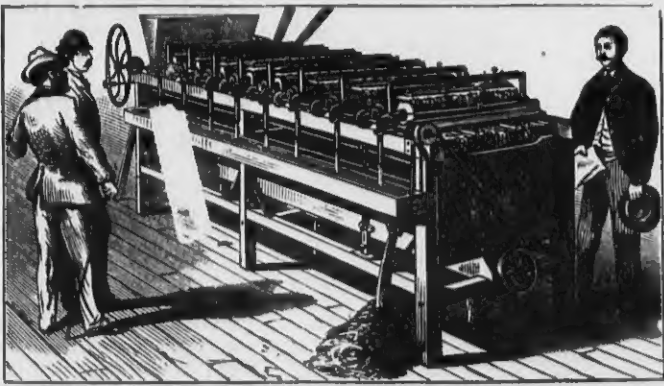
[Mention the United States Miller when you write.]

THE ELECTRIC PURIFIER CO.

FACTORY, NEW HAVEN, CONN. NEW YORK OFFICE, 17 MOORE ST.

IT PURIFIES MIDDINGS

Absolutely without waste. With greatly reduced space. With greatly increased rapidity. With greatly reduced power. With the very best results.



IT DISPENSES WITH All air blasts. All dust houses. All dust collectors. All dangers of explosion. All dangers of Law Suits.

Circulars, Samples, and all Information desired will be sent out from the New York Office on Application.

JOHN BICE, General Manager, 17 Moore Street, New York.
JAMES E. LOOMIS, Gen. Western Agent, St. Louis, Mo.
GEORGE G. SMITH, San Francisco, Manufacturer and Agent for Pacific Coast.

C. F. MILLER.

MANSFIELD, OHIO,

GENERAL MILL FURNISHER.

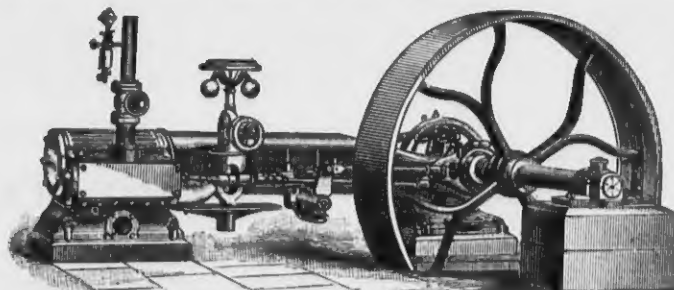
Plans and Specifications for Mills of any Capacity.

ROLLER MILLS ON THE STEVENS SYSTEM A SPECIALTY.**BOLTING CLOTH** of the Best Brands at Importers' Prices. **Water Wheels, Purifiers, Cleaning Machinery, Reels, Belting,**

Everything used in a Flour Mill, at the lowest prices. If you want anything for your Mill, write first to me.

WOODBURY, BOOTH & PRYOR

ROCHESTER, N. Y.,



Manufacturers of

*Automatic Cut-Off, Fixed Cut-Off, and Slide Valve***Steam Engines, Tubular Boilers.**

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BOTTLED BEER.**VOECHTING, SHAPE & CO.,**

SOLE BOTTLERS OF

JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER,

Cor. Second and Galena Streets,

MILWAUKEE, WISCONSIN.

BOTTLED SUPPLIES CONSTANTLY ON HAND.

F. Files corresponding will please state where they saw this advertisement.]

The Geo. T. Smith Middlings Purifier.

LOW IN PRICE,

Quantity and Quality of Work Considered.

Licensed Under all Patents

Owned by the Consolidated Middlings Purifier Company.

Simple, Easily Adjusted,

Two Thousand SMITH PURIFIERS were Sold in 1881.

THE SMITH PURIFIER is in Use in every Milling Country in the World. More than Four Thousand are now running in the United States.

The Smith Purifier has a Positive and Effective Means of Cleaning the Silk of the Sieve. The Smith Purifier has Graded, Controllable Air Currents. It is Impossible to do Good and Economical Work without these Features.

OUR CLOTH TIGHTENER

Makes it both convenient and easy to keep the Silk always properly stretched.

OUR AUTOMATIC FEED

IS POSITIVELY SELF-ADJUSTING AND RELIABLE.

WRITE FOR DESCRIPTIVE PRICE LIST AND CIRCULAR TO

GEO. T. SMITH MIDLINGS PURIFIER CO., Jackson, Michigan.

PURIFIERS.

REDFIELD'S COMBINED ELEVATOR AND PURIFIER!

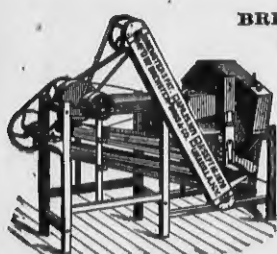
Why these Purifiers are Such Favorites Wherever Introduced.

1. It is because they do better work.
 2. Are more simple in construction, less subject to get out of order, and require less attention.
 3. Are more durable, as they have fewer journals and wearing parts.
 4. Require less power.
 5. Sieves do not choke up, as soft substances in middlings are not permitted to come in contact with the sieve.
 6. Are more readily adjusted to different kinds of middlings.
 7. Are furnished for less money than others.
 8. Last, but not least, by any means, they elevate their own middlings any height and distance necessary, thereby saving an expense, in setting up and starting, of from \$50 to \$150. Right to use fully protected and guarantee given.
- For circulars giving prices and full particulars, address

J. H. REDFIELD, Salem, Ind.

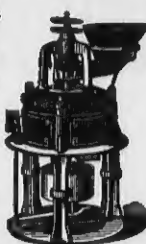
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Buckwheat Refiners & Portable Mills.



**BREWSTER'S CELEBRATED
Buckwheat Refiner**
Is the only Machine
whereby the greatest
yields of
**PURE, WHITE,
SHARP FLOUR**
can be obtained.
The only reliable, practical
and durable Machine
IN THE WORLD.

The Positive Adjustment
AND AUTOMATIC
Middlings Mill
Is strictly Self Protecting,
The **BEST ADJUSTMENT**
IN THE WORLD.
And the only
PERFECT GRANULATOR,
GRINDS COOL, SELF OILING,
GREAT SAVING OF POWER,
SIMPLICITY AND
Durability Combined.



Satisfaction Guaranteed on all our Goods. Send for descriptive Circular, giving Prices, Sizes, Terms, etc.

BREWSTER BROS. & CO., Unadilla, N. Y.

[Mention this paper when you write.]

"THE GREAT ROCK ISLAND ROUTE"

Call your attention to the following REASONS WHY, if about to make a Journey to the GREAT WEST, you should travel over it:

As nearly absolute safety as is possible to be attained. Sure connections in UNION DEPOTS, at all important points. No change of cars between CHICAGO, KANSAS CITY, LEAVENWORTH, ARCHISON or COUNCIL BLUFFS. Quick journeys because carried on Fast Express Trains. Day cars that are not only artistically decorated, but furnished with seats that admit of ease and comfort. Sleeping cars that permit quiet rest in home-like beds. Dining cars that are used only for eating purposes, and in which the best of meals are served for the reasonable sum of seventy-five cents each. A journey that furnishes the finest views of the fertile farms and pretty cities of Illinois, Iowa and Missouri, and is afterwards remembered as one of the pleasant incidents of life. You arrive at destination rested, not weary; clean, not dirty; calm, not angry. In brief, you get the maximum of comfort at a minimum of cost.



That the unremitting care of the Chicago, Rock Island & Pacific Railway for the comfort of its patrons is appreciated, is attested by its constantly increasing business, and the fact that it is the favorite route with delegates and visitors to the great assemblies, political, religious, educational and benevolent, that assemble from time to time in the great cities of the United States, as well as tourists who seek the pleasantest lines of travel while en route to behold the wonderful scenes of Colorado, the Yellowstone and Yosemite. To accommodate those who desire to visit Colorado for health, pleasure or business, in the most auspicious time of the year, the Summer season and months of September and October, the Company every year puts on sale, May 1st, at all coupon ticket offices in the United States and Canada, round trip tickets to

DENVER, COLORADO SPRINGS AND PUEBLO,

At reduced rates, good returning, until October 31st. Also to San Francisco, for parties of ten or more, good for ninety days, at great reduction from regular fares.

For further information, time-tables, maps or folders, call upon or address

R. R. CABLE,
Vice-President and Gen'l Mgr., Chicago.

E. ST. JOHN,
Gen'l Ticket and Pass Agent, Chicago.

SPECIAL NOTICE.

For the more complete protection of our customers, and to put an end at once and forever to the demands for royalties by which they have recently been annoyed, we have purchased ALL PATENTS relating to Purifiers, lately owned by Huntley, Holcomb & Heine, including the well-known MIDDLETON PATENT and its several re-issues.

Every purchaser or owner of a Geo. T. Smith Purifier, in the past or future, owns the right to use it unmolested and unchallenged, and in this right we have, can and shall protect them.

Intending purchasers should give this notice attention, as it is of the utmost importance to them.

Adapted to all Systems

Of Milling, and every Grade and Condition of Middlings.

FOURTEEN SIZES

Single, Double and Special Machines.

Durable, Light Running.

J. J. BELL,

41 S. William St., New York,

Manufacturer and Importer of

MILLSTONES,

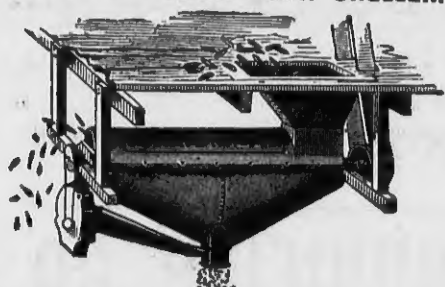
BOLTING CLOTHS,

Mill Irons, Belting, Mill Picks, Iron Proof Staffs,
Smut Machines, Elevator Cups, and

Mill Furnishings in General.

Having been engaged in the manufacture of MILLSTONES, CHASERS, &c., for the past 30 years, I am prepared to fill all orders not only at the lowest price, but the best qualities for the purpose intended.
(Mention this paper when you write.)

TRIUMPH POWER CORN SHELLER.



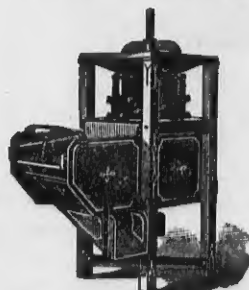
Shells and Cleans 2,000 Bushels Ears per Day.
The Cheapest, Best, and most Simple Power Corn Sheller in use. Send for Circular and Price List.

Manufacturers of Steam Engines, Mill Builders and Mill Furnishers.

HULBERT & PAIGE MFG. CO., Painesville, Ohio.
(Mention this paper when you write us.)

MARSHALL'S

NEW CORN SHELLER.



The only Self-Adjusting Sheller in use that will

SHELL MIXED CORN,

FAST AND WELL,

And that will clean it THOROUGHLY.

Easy of access to all parts liable to clog. Thoroughly made. Sold as cheap as the cheapest.

Send for circulars to

G. MARSHALL & SON,

Founders and Machinists and Manufacturers of Marshall's Rotary Force Pump. Improved Jonval Turbine Water Wheel, etc.

Kilbourn City, Wis.

(Mention this paper when you write us.)

SITUATION WANTED

By a Miller of long experience; Situation in a large City mill preferred.

Address, **JOHN HAWKS,**

Care of United States Miller,

Milwaukee, Wis.

BOLTING Cloths, —OF THE— *Best Brands*

SOLD AT IMPORTERS LOWEST PRICES.

Sold by the piece, or cut and made up in any quantity desired. Plans of bolting complete for stone or roller mills.

Address, **C. F. MILLER,**
Mansfield, Ohio.

BUDGETT, JAMES & BRANTH,

Flour Merchants,

BRISTOL, ENGLAND.

[Mention this paper when you write us.]

Chamberlain, Pole & Co.,

Brokers & Factors

IN FLOUR,

BRISTOL, ENGLAND.

[Mention this paper when you write us.]

H. G. JANSSEN & CO.,

Commission Merchants,

Amsterdam, Netherlands, Europe.

Orobio de Castro & Co.,

AMSTERDAM (Holland), Europe.

Telegrams, OROBIO, Amsterdam,

AGENTS FOR

Flour and Grain,

AMERICAN

Correspondence Solicited.

CONSIGNMENTS ACCEPTED.

JUST OUT!

MILLER,

Millwright & Millfurnisher

—BY—

Robert Grimshaw.

A practical and useful Hand Book, on Mill construction, Plans, Water Wheels, Boilers, Engines, Transmission, Grain Cleaning, Wheat Drying and Heating, Granulation and Grinding, Buhr Stone, Mounting Buhrs, Various Millstone Dresses, Buhr Dressing, Rollers, Purifiers, Reels and Chests, Elevating, Spouting and Conveying, Weighing, Testing, Packing, Branding and Storing, Changing and Altering Mills, Millwrighting Tools and Operations, Composition and Structure of the Wheat-Berry, Grain Destroyers, &c., &c., &c. 550 large octavo pages, 350 illustrations. Contains three times as much matter as any other Milling work published. Free by Mail on receipt of \$6.00. Address all orders to

R. P. ASHLEY,

408 PEARL STREET,

Camden, N. J.

STEEL

CAR

PUSHER

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

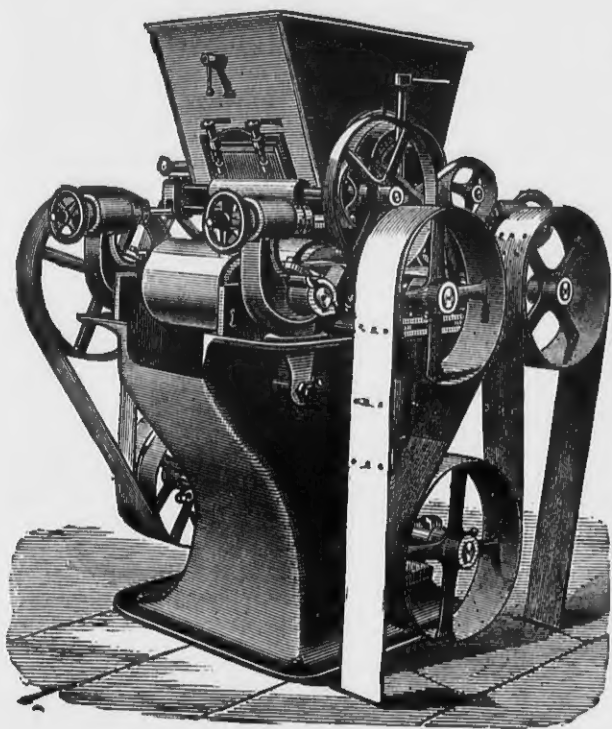
Manufactured by **E. P. DWIGHT,**
Dealer in Railroad Supplies, 407
Library St., Philadelphia, Pa.

[Mention this paper when you write us.]

CHOICE BEVELLED EDGE

FLOUR BRANDS

For two dollars and upwards. Also RUBBER STAMPS, BURNING BRANDS, SEALS, STEEL NAME STAMPS, LETTERS AND FIGURES, Etc. Orders promptly attended to.
OHAS. H. OLARK,
Box 114
82 Wisconsin St., Milwaukee.

EDW. P. ALLIS & CO.**MILWAUKEE, WISCONSIN,****MILL BUILDERS AND FURNISHERS,****AND SOLE MANUFACTURERS OF****GRAY'S PATENT NOISELESS****ROLLER MILLS****CORRUGATED AND SMOOTH CHILLED IRON ROLLS,****WEGMANN'S PATENT PORCELAIN ROLLS.**

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish References on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

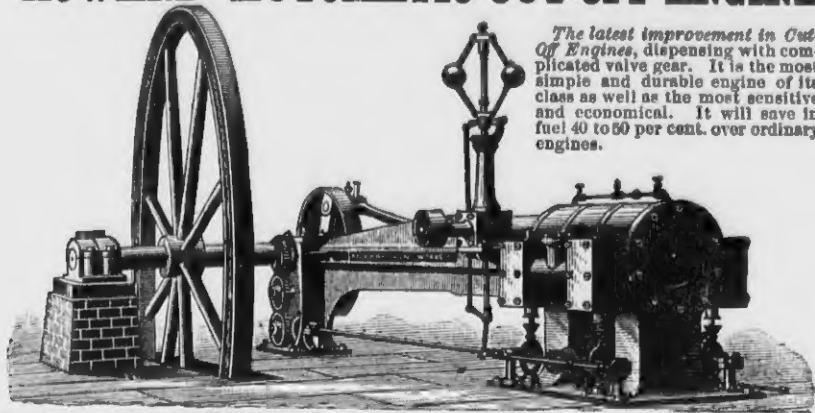
We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller Takes no Chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

Send for New Illustrated Catalogue, Giving full Information, to

EDW. P. ALLIS & CO.,**MILWAUKEE, WIS.**

"HOWARD" AUTOMATIC CUT-OFF ENGINE.

Built only by the **MURRAY IRON WORKS CO., BURLINGTON, IOWA.**
BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY.

The latest improvement in Cut-Off Engines, dispensing with complicated valve gear. It is the most simple and durable engine of its class as well as the most sensitive and economical. It will save in fuel 40 to 50 per cent. over ordinary engines.

RICHMOND MANUFACTURING CO.,

LOCKPORT, N. Y.

Manufacturers of

RICHMOND'S CELEBRATED

Smut Machines,

Brush Machines,

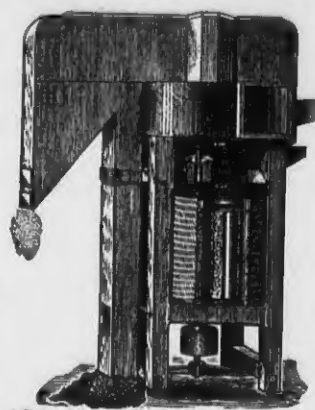
Grain Separators,

and Bran Dusters.

Nearly Two Hundred of these Machines are now in operation in the city of Minneapolis, Minn., alone, and more than sixty in the city of Milwaukee, Wis. They are also extensively used in many other sections, both on Winter and Spring Wheat.

SEND FOR DESCRIPTIVE CATALOGUE.

[Mention this paper when you write.]



Adjustable Brush Smut Machine.

POOLE & HUNT'S
Leffel Turbine Water Wheel

Made of best materials and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this Paper when you write us.]



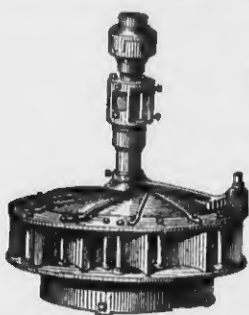
James Leffel's Improved
WATER WHEEL.

NEW PRICE LIST FOR 1891.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in Use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this country. Our new Pocket Wheel Book for 1891 and 1892 sent free to those using water power. Address

JAMES LEFFEL & Co., Springfield, Ohio.

and 109 Liberty Street N. Y. City.



[Mention this paper when you write us.]

Stout, Mills & Temple,
DAYTON, - - - OHIO.

MANUFACTURERS OF THE

American Turbine Water Wheel,

Best Quality French BURE MILLSTONES.

Sole Agents in Dayton for the sale of

DU FOUR & CO'S CELEBRATED BOLTING CLOTHS.

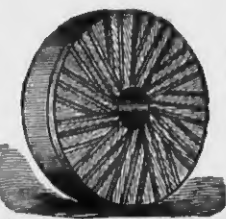
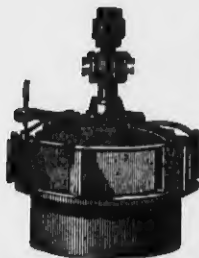
Flour and Paper Mill Machinery, Best Chilled or Porcelain Rolls for Crushing Wheat and Middlings and

GENERAL MILL FURNISHINGS.

The AMERICAN TURBINE, as recently improved, is unequalled in the power utilized from a given quantity of water, and is decidedly the BEST Water Wheel ever known. It has also been otherwise greatly improved.

Large Illustrated Catalogue Sent Free on Application.

[Mention this paper when you write us.]



MEDAL & PREMIUM AWARDED TO
ALCOTT'S
Most Perfect Turbine in Use.

ALCOTT'S
IMPROVED
TURBINE
WATER
WHEEL.



MANUFACTURERS OF
Circular Saw Mills, Shafting, Pulleys,
Hangers & General Mill Machinery,
Selling Particulars of Stream, &c.
Address: **T. C. ALCOTT & SON,**
Mount Holly, N. J.

[Mention this paper when you write us.]

The Perfect Feed Box.



It insures a perfectly even distribution of the middlings over the entire width of the cloth. Every miller will appreciate this. Fits all purifiers. Address,

CASE MANUFACTURING CO.,

COLUMBUS, OHIO.

W. E. CATLIN & CO., 68 LAKE ST., CHICAGO, ILL.,
AGENTS.

Please mention this paper when you write us.]

Over 1,500 of these Turbines
IN USE.



It has tight shutting and easily operated Gate; gives more power for the water used, and will last longer than any other Turbine. Large shop with improved tools for making this wheel and machinery. Illustrated Pamphlet and Catalogue with prices sent free by

BURNHAM BROS.

[Please mention this paper when you write us.]

Milling Made Profitable.

We build mills on any system known. We guarantee a saving of 25 per cent. on the cost of construction and room occupied by

BOLTING CHESTS.

We handle 45 bushels per hour on one reel successfully.
C. B. SLATER & CO.,
Blanchester, Ohio.



[Mention this paper when you write us.]



Mill Furnishing,
Foundrymen & Machinists.
Established 1851.
MILL STONES.
Flooring Mill Contractors.
Send for Pamphlet.
Nordyke & Harmon Co
Indianapolis, Ind.

[Mention this paper when you write us.]

IMPORTANT NOTICE TO MILLERS.

The RICHMOND MILL WORKS, and RICHMOND MILL FURNISHING WORKS are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to
NORDYKE & HARMON CO.
INDIANAPOLIS, IND.

CAWKER'S
AMERICAN FLOUR MILL DIRECTORY
FOR 1892:

Is Now Ready for Delivery.

It has been compiled with the utmost care, and contains 22,844 Addresses

Of Flour Mill Owners in the UNITED STATES and CANADA.
It gives the Capacity and Motive Power of Mills wherever obtained.

MILL FURNISHERS, FLOUR BROKERS,

And Every one Desiring to Reach the Trade,
WILL FIND THIS WORK SIMPLY INVALUABLE.

PRICE, TEN DOLLARS PER COPY.

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